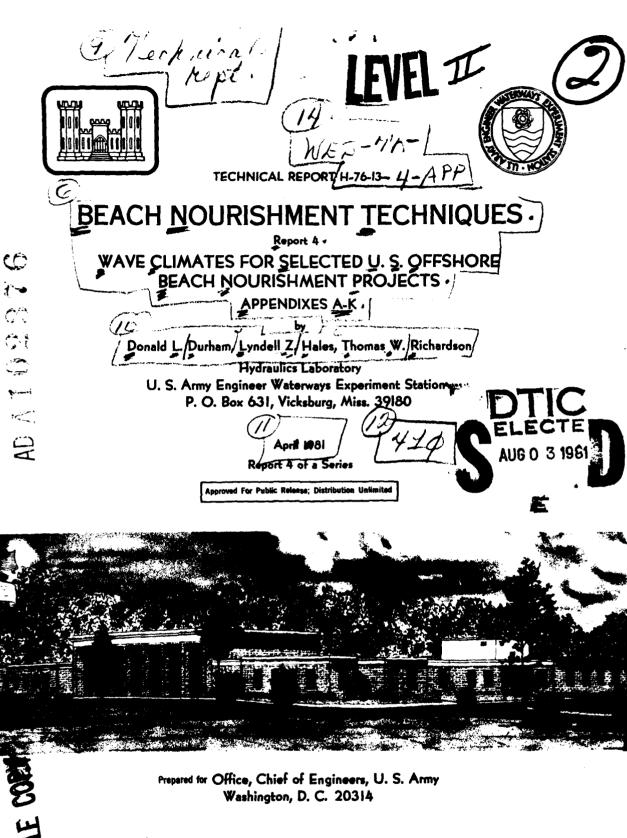
AD-A102 376 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/6 8/3 ANMI ENGINEER WILEYERS EAFTERING STATEM VICESOURG MS FOR 8/3 BEACH NOURISHMENT FECHNIQUES. REPORT 4- WAVE CLIMATES FOR SELEC--ETC(U) APR 81 D L DURHAM, L Z HALES, T W RICHARDSON WES-TR-H-76-13-4-APP UNCLASSIFIED 1 of **5** 100



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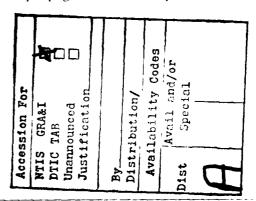
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APPENDIX A: WAVE-HEIGHT COEFFICIENTS AND APPROACH AZIMUTHS

- 1. Wave-height coefficients (combined refraction and shoaling coefficients) and approach azimuths for various wave period classes and deepwater approach azimuths* resulting from refraction analyses of 10 potential offshore beach nourishment projects are given in Tables Al-A9 and All and Al2. These coefficients and approach azimuths are applied to deepwater wave statistics to obtain an estimation of the wave climate at the proposed project locations.
- 2. For those sites on the Atlantic, Gulf, and Great Lakes, the deepwater wave characteristics were determined from the Synoptic Shipboard Meteorological Observation (SSMO) data tapes. The deepwater wave climate for the Redondo Beach, Calif., site was determined from hindcast wave statistics developed for the California Department of Navigation and Ocean Development (DNOD) and Marine Advisers (MA).
- 3. The wave-height coefficients show the effect of varying wave period on wave-height amplification for different directions-of-approach in deep water. The site approach azimuths show the effect of varying period on the propagation azimuths at the project site. Additionally, for the Redondo Beach, Calif., site, Table AlO also indicates the effect of island sheltering on the changes in both direction-of-approach and wave height before the wave climate has propagated from deep water.



^{*} The deepwater approach azimuths given are the ones used as input to the refraction analysis at each site; i.e., the center directions of 30-deg azimuth segments. See paragraph 18 of the main text for a more detailed explanation.

Table Al

Wave Height Coefficients and Approach Azimuths, Borrow Area, Revere Beach, Mass.

	-22	90	09	09
}	20-75	99	09	09
۳.	18-20	09	09	09
deg, sec	16-18	09	9	09
imoths,	14-16	09	09	09
Approach Azimuths, deg, at Cited Periods, sec	<6 6-8 8-10 10-12 12-14 14-16 16-18 18-20 20-22	09	09	06
Appr	10-17	09	09	06
	8-10	30 30 30 60	09	06
	6-8	30	09	90
	9>	30	90	06
	>22	1.37	1.10 60 60 60	0.89
l	20-22	1.3	1.02	0.98
	18-20	1.28	1.04 1.02	1.00
nts for	16-18	1.69	1.23	0.84
Wave Neight Coefficients for Cited Periods, sec	8-10 10-12 12-14 14-16 16-18 18-20 20-22 >22	1.00 0.93 1.69 1.28 1.3 1.37	1.13 1.24 1.23	0.77 0.78 0.84 1.00 0.98 0.89 90 90
ight Co	12-14	1.00	1.13	0.77
Jave He	10-12	1.05	1.17	0.85
	8-10	0.99 1.05	1.13 1.17	0.92 0.85
	8-9	78.0	1.00	1.08
	e-9 9>	1.00 0.87	1.00 1.00	1.00 1.08
Deep- Water Approach	deg	30	09	06

Table A2

Wave Height Coefficients and Approach Azimuths, Between Borrow and Fill Areas, Rockaway Beach, N. Y.

		120	150	150	150
	20-27	120	150	150	150
يد	18-20	120	150	150	150
deg, ?	16-18	120	150	150	150
imuths,	14-16	120	150	150	150
Approach Azimuths, deg, at Cited Periods, sec	12-14	120 120	150	150	150
Appr	<6 6-8 8-10 10-12 12-14 14-16 16-18 18-20 20-22 >22 <6 6-8 8-10 10-12 12-14 14-16 16-18 18-20 20-22 <22	120	150	150	150
	8-10	120	120	150	180
	8-9	120	120	150	180
	\$	90	120	150	180
	>22	1.50 90 120	1.00	0.93 150 150	0.29
	20-22	1.38 1.45	0.80 1.00 120 120 1	.92	0.20 0.18 0.29 180 180 180
	18-20	1.38	0.97	0.90	0.20
nts for	16-18	1.28	.93	0.87	0.25
Wave Height Coefficients for Cited Periods, sec	14-16	1.10 1.20 1.28	, 0,83 (0.69 0.87	0.37 0.28 0.25
ight Corted Per	12-14	1.10	0 77 0	0.73	0.37
wave He	10-12	0.93	. 73		0.43
	8-10	0.80	1.00	0.76	09.0
	8-9	0.78	1.36	1.61	1.15
	ę	0.98 0.78 0.80	0.98 1.36 1.00 0.73	1.00 1.61 0.76 0.78	0.98 1.15 0.60 0.43
Deep- Water Approach		06	120	150	180

Table A3

Wave Height Coefficients and Approach Azimuths, Borrow Area, Carolina Beach, N. C.

	>22	30	09	06	120	150	180
	20-22	30	09	96	120	150	180
at	18-20	30	09	∂6	120	150	180
dep,	16-18	30	()9	1)6	120	150	180
zimuths Periods	14-16	30	09	0.6	120	150	180
Approach Azimuths, deg, at Cited Periods, sec	12-14 14-16 16-18 18-20 20-22	30	99	96	120	150	180
Appu	6-8 8-10 10-12	30	09	06	120	150	180
	8-10	30	09	90	120	150	180
	,	30	09	96	120	150	180
	9	30	09	90	120	150	180
	>22	1.21	1.26	1.13	0.91	0.99	1.33
	2022	1.25	1.27	1.09	1.09	1.00	1.36
	18-20	0.97	1.15	1.03		0.97	1.28
Wave Height Coefficients for Cited Periods, sec	16-18	1.11	1.13	0.99	96.0	0.95	1.39
efficie iods, s	12-14 14-16 16-18	96.0	1.09	0.94	0.77	1.02	1.20
ight Co red Per	12-14	0.87	1.04	0.93	0.86	0.86	30
wave He	10-12	0.93	0.98	06.0	0.87	0.86	1,13
	8-10	96.0	1.03	06.0	0.88	0.84	0.98
	8-9	0.84	1.04	1.11	66.9	1.02	1.03
	9>	1.00	1.01	1.00	1.00	1.02	1.04
Deep	deg	30	60	96	120	150	180

Table A4

Wave Height Coefficients and Approach Azimuths, Fill Area, Carolina Beach N. C.

	40	985 885	sec 16-18 18-20 20-22 >22	8-20 <u>20-22</u> 90 60	90 60 90 90 90	8-20 20-22 90 60 90 90 90 90	8-20 20-22 90 60 90 90 90 90 120 120	90 60 90 90 90 90 120 120 120 120
	Approach Azimuths, deg, at Cited Periods, sec	21 21 16	01-61	07-61	06	06	90 90 120 1	90 90 120 1
	th Azimu	12-14 14-16		6 06	6 06	6 06 6 06	90 9 90 9 90 9	90 9 90 9 90 9 120 12
	Apprea	10-12 12						
		8-10 10		06				
		6-8		09			_	
		ê		09	09	06 09	60 60 90 120	60 60 90 120
		>22		1.25	1.25	1.25	1.25 1.52 1.31 1.98	1.25 1.52 1.31 1.98 1.97
		20-22		1.17	1.17	1.17 1.69 1.26	1.17 1.69 1.26 1.70	1.17 1.69 1.26 1.70
		18-20		1.18	1.18	1.18 1.92 1.33	1.18 1.92 1.33 1.41	1.18 1.92 1.33 1.41
	nts for	16-18	•	71.17	1.12	1.12 1.73 1.27	1.12 1.73 1.27 1.65	0.97 1.08 1.15 1.49 1.65 1.64 1.73 1.0 0.97 1.09 1.05 1.15 1.14 1.65 1.64 1.73 1.9 0.97 1.29 1.24 1.08 1.22 1.26 1.27 1.1 1.00 1.03 0.46 1.04 1.07 1.15 1.65 1.65 1.73 1.1 1.08 1.27 1.29 1.42 1.45 1.65 1.73 1.1
	Wave Height Coefficients for Cited Periods, sec	14-16	1 03	60.1	1.64	1.64	1.64 1.26 1.15	1.64 1.26 1.15 1.15
	ght Coe ed Peri	12-14	0.97		1.65	1.65	1.65	1.65 1.22 1.07 1.45
	ave Hei Cit	10-12	0.89		1.49	1.49	1.49 1.08 1.04	1.49 1.08 1.04 1.42
	iš	8-10	0.78		1.15	1.15	1.15	1.15 1.24 0.96 1.29
		8-9	0.75		1.05	1.05	1.05 1.29 1.03	1.05 1.29 1.03
		9	96.0		0.97	0.97	0.97 0.97 1.00	0.97 0.97 1.00 1.08
Deep- Water	pproach zimith.	gap	30			06 09		

Table A5

Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Nassau County, Fla.

	!	67 ^	9	90	99	9	96	120	150
	i	20.52	69	0'5	09	ئ ئ	Ž.	071	150
		18-20	09	99	99	:)6	96	120	150
-	345 340	16-18	60	09	79	90	90	170	150
	eriods,	14-16	30	09	09	06	30	120	150
-	Approach Azimiths, deg, it Cited Periods, sec	12-14	30	99	09	06	96	120	150
	iddy	10-17	30	60	09	06	120	120	150
		8-10	30	09	09	06	120	150	150
	,	8-9	25	09	09	06	120	150	150
	,	\$	30	69	09	06	120	150	150
		>22	09.0	0.85	0.52	0.61	0.40	96.0	1.30
		20-22	0.62	0.76	0.55	0.63	0.37	1.06	1.10
		18-20	0.43	0.76	0.62	07.0	0.31	1.01	1.15
	nes rot	178	0.50	0.65	0.47	65.0	0.33	0.94	03.0
	wave meignt coefficients for Cited Periods, sec	14-16	0.47	0.63	0.74	1.10 0.71 0.40 0.39 0.49 0.44 0.	0.37	98.0	1.02
	rgnt co	12-14	0.45	95.0	0.58	67.0	0.45	0.73	0.98
	wave ne	10-12	0.43	0.58	0.56	0.39	9.35	0.69	0.92
		8-10	0.40	0.43	9÷.0	0.40	0.28	0.65	0.87
		8-9	0.30	3.45	5.73	0.71	3.58	0.70 0.65 0.69	0.95 0.87 0.92
		(\$ -	0.25	0.50	0.98	1.10	1.13	1.20 (1.28 0
Deep- Water	Approach Azimuth,	deg	0	36	99	06	120	150	180

Table A6

Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Dade County, Fla.

<6	Deep- Water Approach				Wave H	Wave Height Coefficients for Cited Periods, sec	seffici6	ents for	L						Appr	oac. Az Cired F	Approac. Azimuths, deg, Cited Periods, sec	deg, a	at		
0.58 0.45 0.48 0.42 0.43 0.59 0.59 0.59 0.97 0.97 0.76 0.86 0.90 0.93 1.06 1.10 0.94 0.96 0.99 1.03 1.11 1.24 1.30 0.92 0.92 1.04 1.08 1.22 1.32 1.41 0.95 1.01 1.01 1.10 1.13 1.29 1.35 0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.81 0.57 0.23 0.30 0.41 0.47 0.50 0.81	deg		9-9	8-10	10-12	12-14	14-16		18-20	20-22	×22×	ç Ç	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×2.
0.94 0.76 0.86 0.90 0.93 1.06 1.10 0.94 0.96 0.99 1.03 1.11 1.24 1.30 0.92 0.92 1.04 1.08 1.22 1.32 1.41 0.95 1.01 1.10 1.10 1.13 1.29 1.35 0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.57 0.23 0.30 0.41 0.47 0.50 0.81	0		0.45	0.48	0.42	0.43	0.59	0.59	99.0	0.77	1.04	30	30	30	09	09	09	9	9	90	96
0.94 0.96 0.99 1.03 1.11 1.24 1.30 0.92 0.92 1.04 1.08 1.22 1.32 1.41 0.95 1.01 1.01 1.10 1.13 1.29 1.35 0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.57 0.23 0.30 0.41 0.47 0.50 0.81	30	0.97	0.76	0.86	06.0	0.93	1.06	1.10	1.14	1.16	1.24	30	9	09	09	09	09	09	60	06	06
0.92 0.92 1.04 1.08 1.22 1.32 1.41 0.95 1.01 1.01 1.10 1.13 1.29 1.35 0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.57 0.23 0.30 0.41 0.47 0.50 0.81	09	0.94	96.0	0.99	1.03		1.24		1.29	1.38	1.39	09	9	9	06	06	90	90	06	06	90
0.95 1.01 1.01 1.10 1.13 1.29 1.35 0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.57 0.23 0.30 0.41 0.47 0.50 0.81	90	0.92	0.92	1.04	1.08	1.22	1.32		1.43	1.45	1.47	90	90	06	06	06	06	90	06	06	90
0.93 0.85 0.88 0.90 0.83 0.96 1.29 0.57 0.23 0.30 0.41 0.47 0.50 0.81	120	0.95	1.01	1.01	1.10		1.29	1.35	1.45	1.55	1.66	120	120	120	06	06	06	06	06	06	90
0.57 0.23 0.30 0.41 0.47 0.50 0.81	150	0.93	0.85	0.88	06.0		96.0		1.45	1.59	1.79	150	120	120	120	120	06	06	06	06	90
	180	0.57	0.23	0.30	0.41	0.47	0.50	0.81	0.99	1.31	1.29	150	150	120	120	120	120	120	0ъ	06	90

Table A7

Wave Height Coefficients and Approach Azimuths, Fill Area, Treasure Island, Fla.

		20 - 22 > 22	210 210	210 210	240 240		270 270	300 300	
		20	સં	2.1	77	2	~1	×	
	:at	18-20	210	210	240	270	270	300	
	deg,	16-18	210	210	240	270	270	300	
	imuths eriods	14-16	210	210	240	270	270	300	
	Approach Azimuths, deg, at Cited Perfods, sec	12-14 14-16 16-18	210	210	240	270	270	300	
	Appr	10-12	210	210	240	270	270	300	
		8-10	210	210	240	270	270	300	
		8-9	210	210	240	270	270	300	
		9	210	210	240	270	270	300	
		222	1.66	1.53	1.45	1.74	1.80	0.73	
		20-22	1.58	1.37	1.54	1.68	1.77	1.10	
		18-20	1.53	1,29	1,45	1.60	1.70	0.88	
	nts for	16-18	1.45	1.31	1.40	1.50	1.59	1.10	
	Wave Height Coefficients for Cited Periods, sec	12-14 14-16 16-18 18-20	1.35	1.23	1.29	1.40	1.51 1.49 1.59	0.78	
	ight Co ted Per	12-14	1.25	.14	1.18	1.32	1.51	06.0	
	tave He	10-12	1.20	1.07	1.08	1.35	1.43	0.80	
	ح.	8-10	1.06	06.0	1.00	1.40	1.44	0.77	
		8-9	1.12	06.0	0.93	1.22	1.30	0.57	
		9>	1.39	1.11	0.89	1.37 1.22 1.40 1.35 1	1.15	07.0	
Veep- Water	Approach Azimuth,	deg	180	210	240	270	300	330	

Table 48 Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Panama City, Fla.

	[]	180	210	210	240	740	240
	20-22	180	210	210	540	240	240
at	18-20	180	210	210	240	240	240
e 'gap	16-18	180	210	210	240	240	240
imuths, eriods,	14-16	180	210	210	240	240	270
Approach Azimuths, deg, Cited Periods, sec	12-14 14-16	180	180	210	240	240	270
Appr	10-12	180	180	210	240	240	270
	-10	180	180	210	240	240	270
	8 8-9	180	180	210	240	240	270
	9	150	180	210	240	270	300
	,22	1.21	1.45	1.49	1.19	1.26	1.05
	20-22	1.23	1.32	1.37	1.17	1.32	1.02
	14-16 16-18 18-20	1.24	1.38	1.29	1.14	1.19	0.86
its for	16-18	1.24	1.47	1.29	1.01	1.06	0.87
tht Coefficients ad Periods, sec	14-16	1.15	1.18	1.33	1.13	0.95	0.92
Wave Height Coefficients for Cited Periods, sec	12-14	06.0	1.32	1.23	0.93	0.87	0.76
lave Heig Cite	10-12	0.93	1.18	0.90 1.38 1.20 1.09	0.93	0.86	08.0
3	8-10	0.92	1.15	1.20	0.94	0.88	98.0
	% <u>-</u> 9	0.92	1.22	1.38	1.28	1.05	0.66 0.86
	9	0.87	0.89	06.0	0.91	0.90 1.05	0.76
Deep- Water Approach Azimuth,	deg	150	180	210	240		300

Table A9

Wave Height Coefficients and Approach Azimuths, Redondo Beach, Calif.

Sheltered																
Approach			Wave	Height	Height Coefficients for	ients f	or.				Appro	ach Azi	Approach Azimuths, deg, at	deg, at		
Azimuth				Cited F	eriods,	sec	,	1		i	S	ited Pe	riods,	sec		
gep	9>	01-8 8-9 9>	8-10	10-12	10-12 12-14 14-16 16-18 >18	14-16	16-18	>18	9>	8-9	8-10	10-12	6-8 8-10 10-12 12-14 14-	14-16 16-18 >18	16-18	×18
210	0.30	0.30 0.50 0.70	0.70	0.85	0.85 0.96 1.00	1.00	1.02 1	1.30	240	240	240 2	270	270	270	270	270
240	06.0	0.90 0.79 0.73	0.73	06.0	0.90 0.88	0.70	0.88	0.93	240	240	240	270	270	270	270	270
270	0.96	0.96 1.00 0.91	0.91	1 0.96	0.98	0.83	0.84	1.03	270	270	270	270	270	270	270	270
300	0.95	1.00	1.00 1.03	0.87	1.01	1.19	1.09	0.95	300	300	300	300	300	300	300	300
330	0.82	0.82 0.60 0.65	0.65	0.73	09.0	08.0	09.0	0,40	330	330	330	330	330	330	330	330

Table Al0
Redondo Beach, Calif., Island

Sheltering Effects

Period sec	Deepwater Azimuth deg	Sheltered Azimuth deg	Wave-Height Coefficient
5	160	205	0.08
7	160	205	0.06
5	170	209	0.30
7	170	209	0.29
9	170	210	0.28
13	170	211	0.24
15	170	212	0.21
17	170	214	0.08
5	180	214	0.44
7	180	214	0.43
9	180	214	0.43
13	180	216	0.40
15	180	216	0.37
17	180	219	0.30
19	180	222	0.21
5	190	218	0.56
7	190	217	0.54
9	190	217	0.52
13	190	218	0.48
15	190	218	0.45
17	190	221	0.48
19	190	224	0.30
5	200	220	0.63
7	200	219	0.60
9	200	218	0.56
13	200	218	0.52

(Continued)

(Sheet 1 of 5)

Table AlO (Continued)

Period sec	Deepwater Azimuth deg	Sheltered Azimuth deg	Wave-Heigh Coefficien
15	200	219	0.49
17	200	221	0.42
19	200	224	0.33
5	210	226	0.72
7	210	225	0.69
9	210	224	0.65
13	210	221	0.56
15	210	219	0.51
17	210	221	0.44
19	210	224	0.35
5	220	231	0.80
7	220	231	0.77
ġ	220	231	0.73
13	220	230	0.64
15	220	226	0.57
17	220	227	0.49
10	220	229	0.39
5	230	236	0.86
7	230	236	0.82
9	230	236	0.78
1.1	230	236	0.74
13	230	233	0.66
15	230	228	0.57
17	230	229	0.49
19	230	230	0.40
5	240	240	0.87
7	240	239	0.83
9	240	239	0.79

(Continued)

(Sheet 2 of 5)

Table AlO (Continued)

Period sec	Deepwater Azimuth deg	Sheltered Azimuth deg	Wave-Heigh Coefficien
5	250	245	0.88
7	250	245	0.84
9	250	244	0.80
11	250	244	0.75
1 3	250	240	0.66
15	250	234	0.55
17	250	234	0.47
5	260	252	0.82
7	260	252	0.78
9	260	252	0.74
11	260	252	0.69
13	260	248	0.59
17	260	237	0.43
5	270	261	0.79
7	270	258	0.71
9	270	258	0.66
1.1	270	259	0.61
13	270	258	0.50
15	270	255	0.36
17	270	252	0.31
5	280	267	0.72
7	280	264	0.64
9	280	263	().6()
11	280	263	0.56
13	280	263	0.45
15	280	264	0.31
17	280	263	0.25
5	290	267	0.60

(Continued)

(Sheet 3 of 5)

Table AlO (Continued)

Period	Deepwater Azimuth	Sheltered Azimuth	Wave-Height
Sec_	deg	deg	Coefficient
7	290	266	0.58
9	290	265	0.56
1.1	290	264	0.53
13	290	264	0.42
15	290	265	0.29
17	290	264	0.23
5	300	272	0.49
7	300	271	0.47
9	300	270	0.44
11	300	269	0.42
13	300	268	0.34
15	300	266	0.26
17	300	265	0.21
5	310	279	0.37
7	310	279	0.34
q	310	278	0.31
11	310	277	0.28
13	310	283	0.18
1.5	310	288	0.12
17	310	288	0.10
5	320	287	0.25
7	320	287	0.23
9	320	287	0.20
11	320	287	0.18
13	320	288	0.15
15	320	288	0.11
17	320	288	0.09
5	330	288	0.19

(Continued)

(Sheet 4 of 5)

Table AlD (Concluded)

Period sec	Deepwater Azimuth deg	She'rered A muth deg	Wave-Height Coefficient
į.	3.30	287	0.19
4	3 3()	287	0.18
11	330	287	0.16
1 3	3.30	288	0.13
1 ·	3 30)	288	0.10
17	(3 0)	288	0.08

Table 511

Wave Height Coefficients and Approach actualist, iill area, Indian spaces, and

	1.		136	Ξ	s, č	ā
	7		1.81	()	9	Ō
Ħ	1 20	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	336	Ξ	ن	٦
	57-77	330	36	-	Ξ	Ö
		3.80	3 3%	c	3	0
Sprone Artestice regent	13-14	3.3%	33.	٠	ř.	9
<u>.</u>	THE THE THE STATE OF A	13(. }	330	0	а	0
· .	5) [-]	í)ı.\$	330	0	=	9
	≆. 1	Ž	330	ē	٥	30
:	4 }	3(2:1)	330	:	30	90
	3	300	1.79	1.89	3	0.80
	() ()		1.70	16.1	. 39	0,90
	3X-20	7.06	1.60	1.84	1.47	0.85
To Jak	16-18	1.83	1.60	1.70	1.42	0.78
dave Height Coefficients for Cited Seriods, sec	12-14 14-16 16-18 18-20 (0)-22	1.83 1.48 1.85	1.81 1.42 1.60 1.60 1.70 1.79 330 330 330	1.48 1.52 1.70 1.84 1.91 1.89 6 6 0 0 9	1.28 1.50 1.42 1.47 1.39 1.42 99 6 0	0.60 0.73 0.78 0.85 9.90 0.80 10 6 0 0 0
		50	1.81	1.48	1.28	09.0
Mave Hety	5-8 8-10 10-12	1.50	1.57	1.57	1.31	0.56
	8-10	6+.1	1.19	1.41 1.57	1.38 1.31	0.46
	9-9	1.63	1.60	1.33	1.44	0,40
	9	0.91 1.63 1.49 1.50	0.93 1.60 1.19 1.57	0.91	0.84 1.44	0.55 0.40 0.46 0.56
Deep- Water Approach	deg	300	330	0	30	09

Table Al2

Wave Height Coefficients and Approach Azimuths, Fill Area, Presque Isle, Pa.

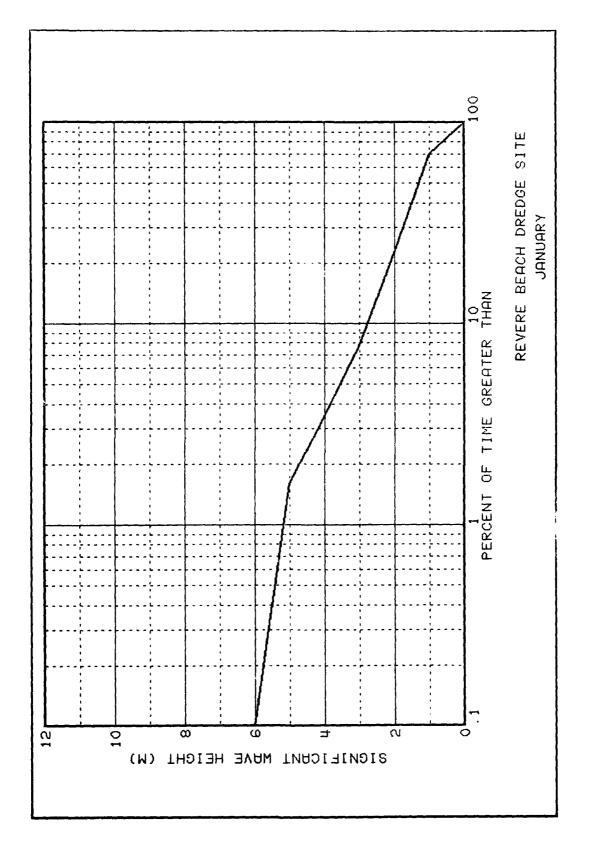
			2	i on	4 4 4	and managering proof advisor contra) () () () ()							\$ \$ 4	4					
			š	ave ner Cit	ed Peri	dited Periods, sec	102 101 30							rddw	Cited P	Approach Azimicus, dez, at Cited Periods, sec	1 50 m	1		
*	2	8-9	8-10	10-12	12-14	<6 6-8 8-10 10-12 12-14 14-16 16-18 18-20	16-18	18-20	20-22	22	9	8-6	9-10	10-12	12-14	12-14 14-16 16-18	16-18	18-20	30-22	
1.6	30 1.	. 27	95.1	1.68	1.66	1.45	1.50	1.77	1.70	1.80	270	270	270	300	300	300	300	300	300	300
0.5	35 1.	.07	1.17	1.25	1.36	1.45	1.54	1.62	1.68	1.75	300	300	300	300	300	300	300	300	300	300
0.5	35 1.	.03	1.16	1.27	1.36	1.47	1.59	1.64	1.74	1.78	330	330	330	330	330	330	330	330	330	330
3.0	37 0.	. 93	1.04	1.08	1.16	1.26	1,31	1.44	1.50	1.56	С	0	330	330	330	330	330	330	330	330
0.6	58 0.	.83	1.04	0.68 0.83 1.04 1.18 1.19	1.19	1.17	1.24	1.31	1.39	1.46	0	0	0	0	0	0	O	0	0	0
0.53	53 0.	.57	0.57 0.75 0.74	0.74	0.73	08.0	08.0	0.88	0.94	0.94	30	30	30	30	30	30	30	30	,	30

APPENDIX B: AVERAGE WAVE CLIMATE AT REVERE BEACH, MASS.

- 1. Appendix B contains the following information for the Revere Beach, Mass., sand borrow site:
 - a. Tabulations of monthly percent occurrence of wave-height/ period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations,
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

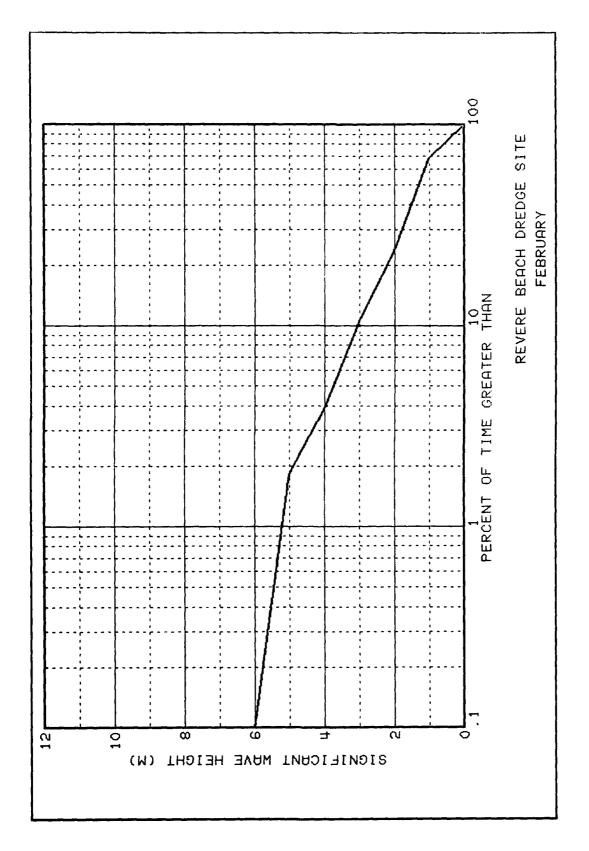
REVERE BEACH DREDGE SITE COMULATIVE SER / SMELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PER I OD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-18	16-18	18-20	20-22	>22	
10-00	28,05	1.53	0.31	00.00	0.27	0.00	0.00	0.00	0.00	00.00	30.15
01-02	37,48	7.32	1.50	0.29	0.64	0.17	00.00	00.00	00.00	00.00	47.40
02-03	5,49	5.74	1.99	0,75	0.57	0.13	00.00	00.00	00.00	0.00	14.66
03-0 ₄	00.00	1,83	1.64	0,41	0.45	0.00	0.00	00.00	00.00	0.00	₽. 92
04-05	00.00	0.21	1.57	0.09	00.00	00.00	0.30	00.00	0.00	0.00	1.87
02-06	0.82	00.00	0.78	0.00	00.00	00.0	00.00	00.00	0.00	00.00	1.60
06-07	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
60-80	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	00.0	0.00	00.0
01-60	00.00	0.00	00.00	00.00	00.00	00.00	00.00		0.00	00.00	00.00
TOTAL	71.83	16.62	7.78	1,53	1,03	0.30	0.00	0.00	00.00	0.00	



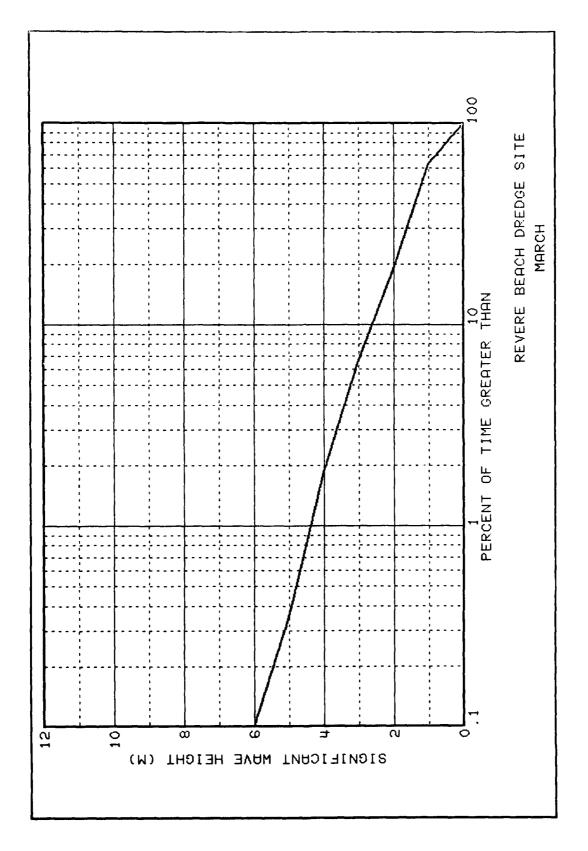
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PER I OD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×22	
10-00	28.46	1,29	1.74	0.00	00.00	00.00	0.00	00.00	00.00	00.00	31.50
01-02	36.78	5.64	₽. 5¥	00.00		0.00	0.00	00.00	0.00	00.00	96.44
02-03	6.81	4.02	2,18	00.00	00.00	0.05	0.00	0.00	00.00	00.00	90.61
40-E0	3,64	1.32	1.26	00.0	0.22	0.17	0.00	00.00	00.00	0,00	5,62
04-02	0.65	0.73	0.44	0.07	00.00	0.17	0.00	00.00	00.00	00.00	2.06
05-06	00.00	0.20	0,25	1.13	00.00	0.24	0.00	0.00	0.00	0.00	1.81
06-07	00.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00
07-08	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	00.00	00.00	00.0
60-80	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00
01-60	00.00	0.00	00.00	00.00	00.00	00.00	_	0,00	0.00	0.00	00.00
TOTAL	76.34	13,21	8, U.S	1,19	0.22	0.63	0.00	0.00	0.0	00.00	



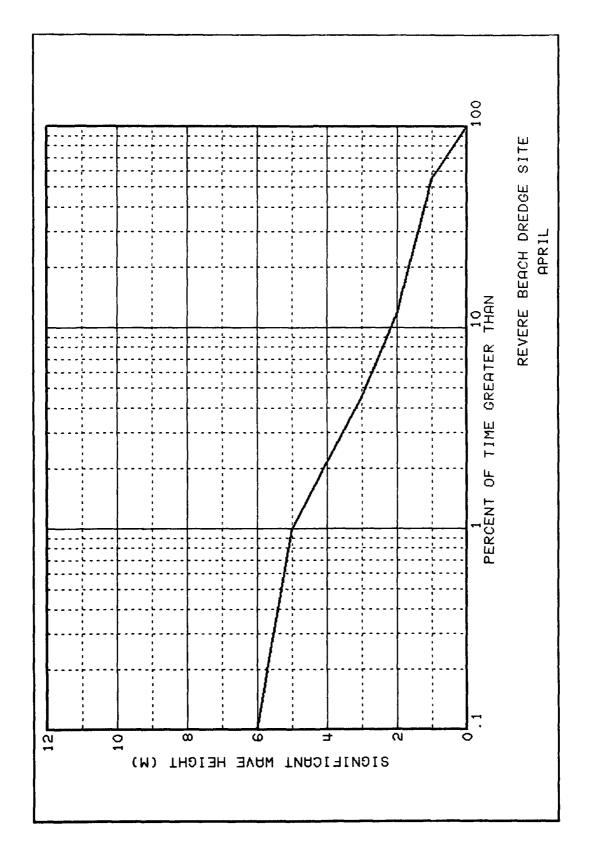
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD	(SEC)					TOTEL.
	<5−8	8-9	8-10	10-12	12-14	14-16	16-18	19-20	20-82	225	
10-00	34.87	1.80	0.26	0.20	0.05	00.0	00.00	00.00	0.00	00.0	37,19
01-02	37.69	4.17	1.24	0.20	0.47	00.00	00.00	00.0	0.00	0.00	43.78
02-03	6.96	4,14	0.77	0.21	0.14	0.14	00.00	00.00	00.00	0.00	12.37
HO-E0	1.07	1.99		0.35	0.30	0.19	00.00	00.00	0.00	0.00	4.79
04-05	00.00	0,65		0.25	0.22	00.00	00.00	00.00	00.00	00.00	1.50
02-06	0,16	00.00	0.17	0,02	00.0	00.00	00.00	00.00	0.00	00.00	0.35
06-07	00.00	00.00	0,00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00
07-08	0.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	0,00	0.00	00.00
60-80	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
01-60	0.00	0.00	0,00	0.0		00.00	00.00	00.00	00.00	0.00	0,00
TOTAL	80.76	12,76	3,71	1.23	1.19	0.33	00.00	00.00	00.00	0.00	



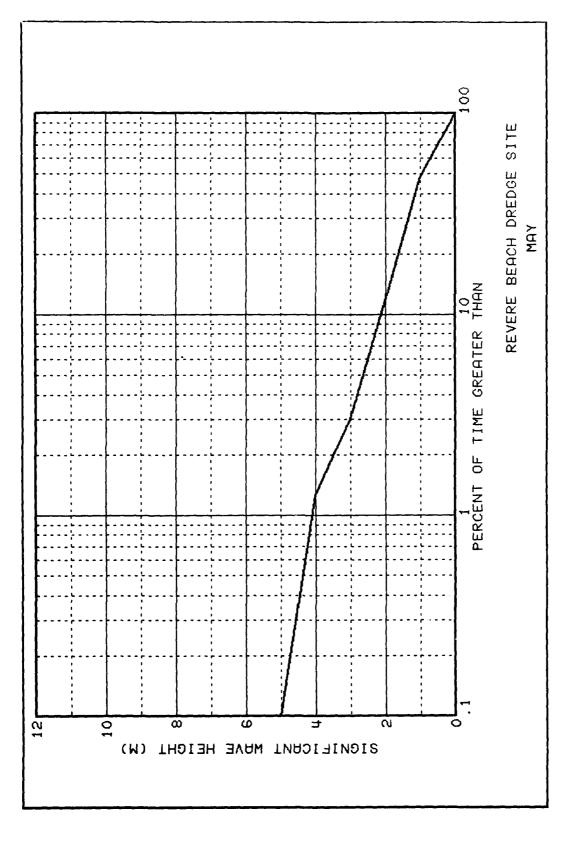
REVERE BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HETGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	21-01	12-14	14-18	16-18	18-20	20~25	>22	
00-01	39,28	3.83	2.03	0,08	00.00	00.00	0.00	0.00	0.00	00.00	45.02
01-05	33,11	7,47	1.56	0,62	0.60	00.00	00.00	00.00	0.00	00.0	43.35
02-03	2,45	P. 94	1,12	0,22	0.23	0.18	0.00		0.00	00.0	7.13
03-04	0.86	0,53	0.61	01.0	0.21	0.03	0.00	00.00	00.00	00.00	2.34
04-05	0.22	00.00	0.61	0,32	00.00	0.00	00,00	00.00	00.00	0,00	1.15
05-06	00.00	00.00	94.0	0.06	0.45	00.0	00.00	00.00	00.00	00.00	୦.୫୬
20-90	00.00	00.00	00.0	00.0	00.0	00.00	0.00	0.00	0.00	00.00	00.00
07-08	00.00	00.0	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
60-80	0.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
01-60	00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00
TOTAL	75.93	14.57	6,39	1.39	1.49	0,21	0.00	00.00	00.00	00.0	



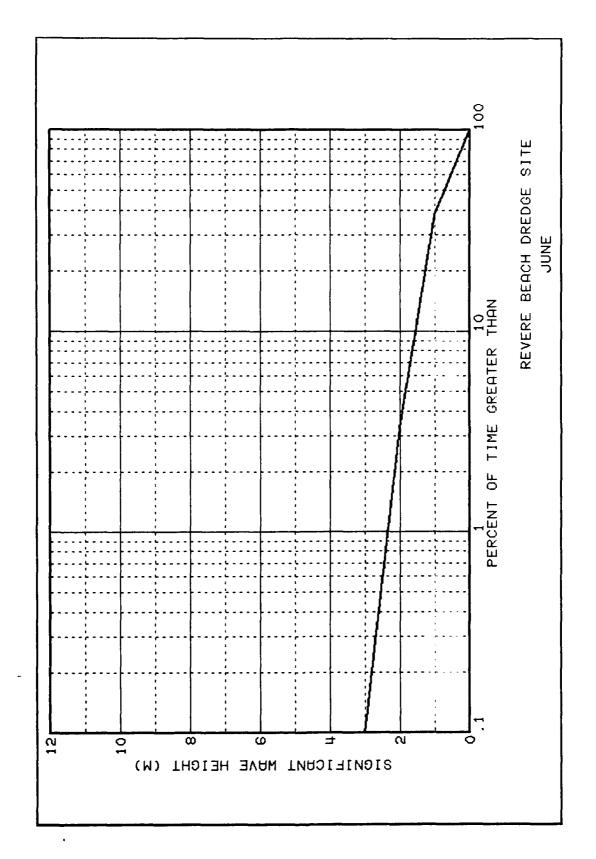
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	47.28	2,21	2,28	0.07	00.00	0.00	00.00	0.00	00.0	0.00	51.82
01-05	30.91	3,12	1.16	08.0	0.47	00.00	00.00	0.00	0.00	00.00	36.45
02-03	4.30	2.85	9.34	0.89	0.34	00.00	00.00		00.00		8.70
40-60	0.75	0.56	0.11	0.13	0.10	0.14	00.00		00.00		1.78
04-05	00.00	0.61	00.00	0.18	00.00	0.47	00.00	00.00	00.00	0.00	1.26
05-06	0.00		0,00		00.00	00.00	00.00	00.00	00.00	00.00	00.00
08-07	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00
07-08	0.00	00.00	00:00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
60-80		00.00	00.00	00.00	-	00.00	00.00	00.00	0.00	00.00	
01-60	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	00.00	00.0	0.00
TOTAL	83.24	9,32	3.86	2,06	0.91	09.0	0.00	0.00	00.00	00.0	



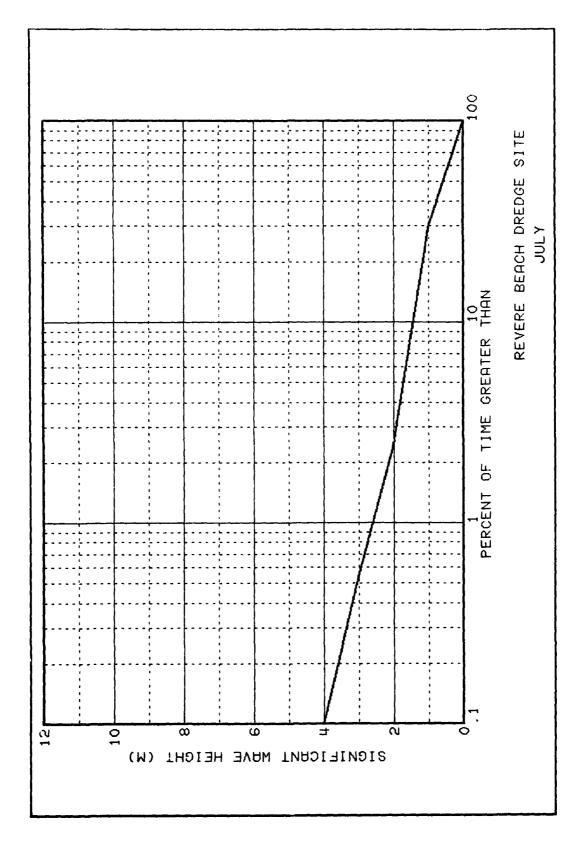
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

	CONCINITY OF A CHELL TRESCENCIES OF MAYE HEIGH HAVE TRICK FOR CONF	200			6112	E E			Y		
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	58.94	2.00	1.03	0,08	00.0	00.00	00.00	0.00	00.00	00.00	62.06
50-10	28,88	3.76	1.62	0.38	0.00	00.00	00.0	00.00	00.00	00.00	34.64
02-03	0,52	1.78	1,00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	3,30
03-04	00.00	00.00	00.00	00.00			0.00	00.00	00.00	00.00	00.00
04-05	00.00	00.00	00.00		00.00	00.00	0.00	00.00	00.00	00.00	00.00
05-06	00.00	00.00	00.00	00,00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	0,00	00.00	00.00	00.0	00.00	00.00	00.00	00.00
60-80	0.00	00.00	00.00	00.00	00.0	0.00	00.00	00.00	00.00	00.00	0.00
01-60	00.00	00.00	00.00	00.00	00.0	00,00	00.00	00.00	00.00	00.00	00.00
TOTAL	88,35	7,54	3,65	94.0	00.00	00.00	00.00	00.00	00.00	00.00	



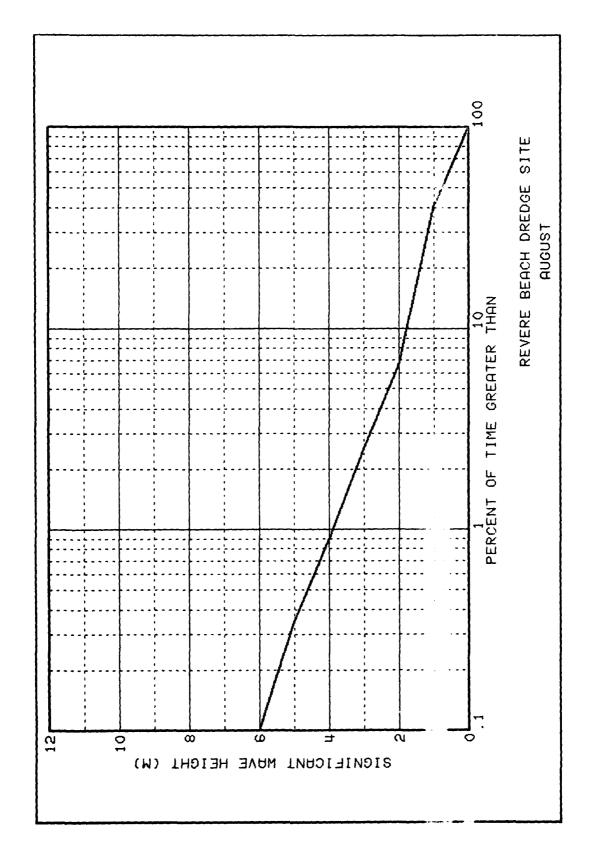
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

	COLOCIATIVE SEN / SWELL TRESCENCIES OF WAVE DELONG TWO LENION COLO	1 1 1	ONE LL	200	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					1	
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-9	8 -10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	64,12	4.08	0,72	00.00	00.00	0.61	00.00	00.00	00.00	1.08	70.61
20-10	20.71	64.4	1.66	0.00			00.00		0.00	0.15	26,95
02-03	0,56	0,39	0.95	00.00			00.00	00.00	00.0	0.00	1.90
40-E0	00.00	00.00	0.54	00.00			00.00		00.00	00.0	0.54
04-05		00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.0	00.00
90-20	00.00	00.00	00.00	0.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00,00	00.00	0.00	00.00	00.00
07-08	00.00		00.00	00.00		00.00	00.00	00.00	0.00	00.00	00.00
60-80	00.00		00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00
01-60	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
TOTAL	85,33	8,90	3,87	00.00	00.00	0.61	00.00	00.00	00.00	1,23	



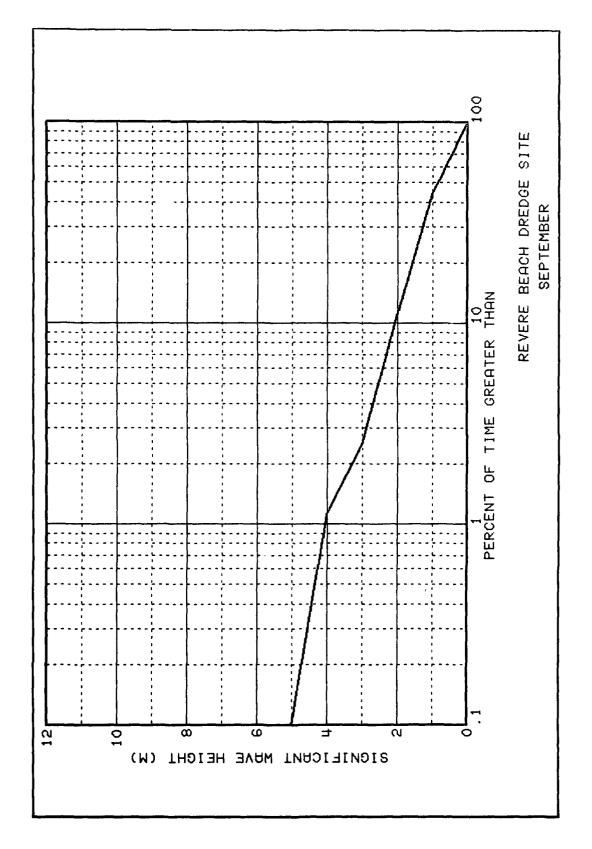
REVERE BEACH DREDGE SITE CUMULATIVE SER / SMELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR RUGUST

	CUMULATIVE SER / SWELL FREQUENCIES OF WHYE HEIGHT AND PERIOD FOR AUGUST	E SEH /	SMETE	FREGUE	CIES OF	MHVE	EIGHI F	NO PERI	95 70 8	HUGUST	
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	55.26	2.94	0.80	0.31	00.00	00.00	00.00	00.0	0.35	0.33	59.98
01-02	SE, 48	6.44	0, u2	0.05	00.00	00.00	0.00	00.00	10.0	0.03	33.43
02-03	P, 41	0.92	0.55	0.20	00.00	00.00	00.00	00.00	0.00	00.00	a0.4
H0-E0	0.70	60.0	0.51	0.33	0.00	00.0	00.00	00.00	00.00	00.00	1.63
04-05	00.00	00.00	0,33	0.21	00.00	00.00	00.00		0.00	00.00	0.54
05-06		00.00	00.00	0.35	00.00	00.00	00.00	00.00	00.00	00.00	0.35
06-07	0.00	00.00	00.00	00.00	00.00		0.00		00.00	0.00	00.00
07-08	00.00	0.00	0,00	00.00			00.00		00.00	0.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.0
01-60	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
TOTAL	84,85	10.39	2,61	1,45	00.00	00.00	00.00	00.00	0.36	0.36	



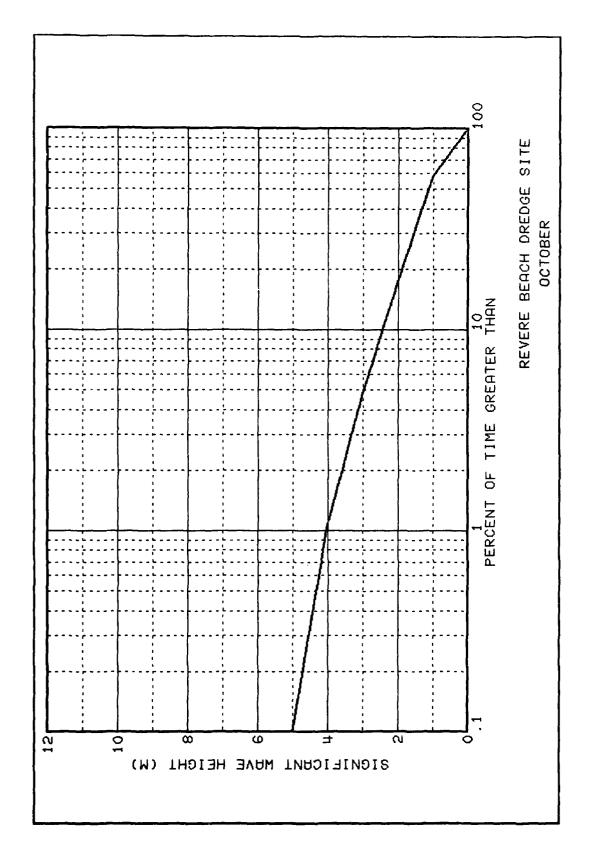
REVERE BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD (SEC)	(SEC)					TCTRL
	<5-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	54.19	94.0	1,02	00.0	00.00	0.19	00.00	00.00	0.00	0.39	56,25
01-02	27,66	4.00	0,89	00.0	00.00		00.0	00.00	0.00	0.19	32.82
02-03	5.45	2.21	0.61		00.00		00.00	00.0	0.00	0.04	8,46
40-60	0.00	0.35	0.89	00.00	00.00		0.00	00.00	00.00	00.00	1,36
04-05	0.20		0,49	00.00		00.00	00.00	00.00	0.00	00.00	
90-50	00.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00	00.00	00.00	00.00
06-07	00.00		00.00	0.00	00.00	00.00	00.00	0.00	0.00	0.00	
07-08	00.00		0.00	00.00	00.00	00.00	00.00		00.00	0.00	00.0
60-80	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
09-10	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0° 00
TOTAL	87.50	7,44	3.30	00.0	00.00	0.53	00.00	00.00	00.00	0.62	



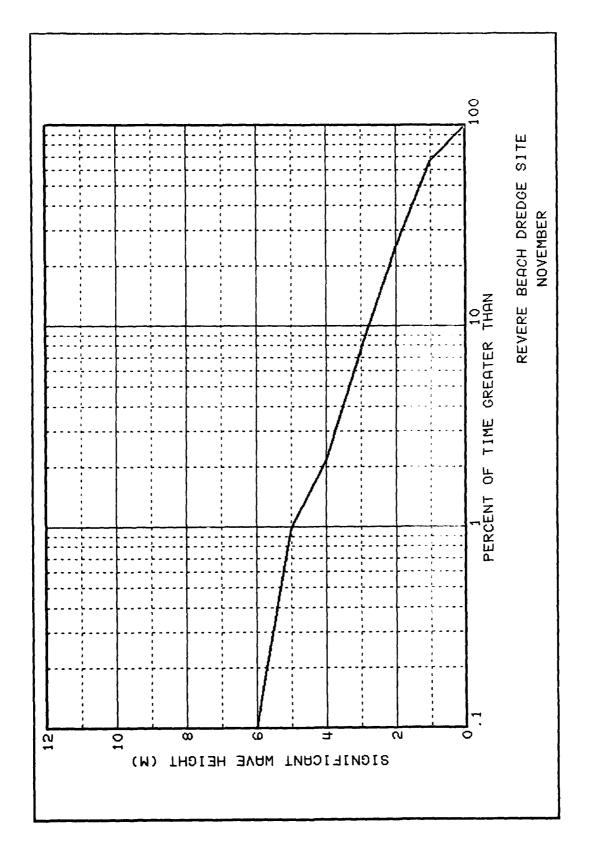
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-6	5-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	40.75	0,25	ა. 32	0.28	90.0	00.00	0.00	0,00	0.00	00.00	41.66
01-02	34.51	3.70	2,15	0.20	0.36	0.14	0.00	00.00	0.00	0.00	41.05
02-03	7.19	e0.e	1,70	00.00	0.30	0.25	0.00	0.00	00.00	0.00	12.46
40-E0	0.57	2.23	0.50	0.26	0.19	00.00	0.00	00.00	00.00	00.00	3,76
04-02	00.00	0.14	0.62	0.20	01.0	00.00	0.00	0.00	0.00	00.00	1,07
05-06	00.00	00.0	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	0.00	0.00	0.00	0.00	00.00	00.00	0.00	00.0
60-80	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
09-10	00.00	00.00	00.0	00.00	0.00	00.00	0.00	00.00	00.00	00.00	00.00
TOTAL	83.02	9.35	5,30	0.94	1.00	0.38	00.00	00.0	00.00	0.00	



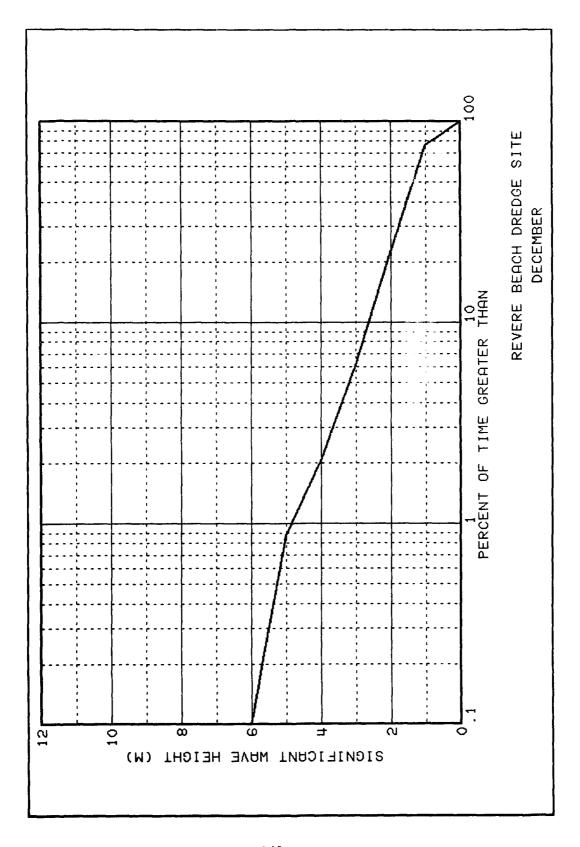
REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREGUENCIES OF WAYE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	90.33	1,73	1.21	00.00	0,18	0.09	00.00	00.00	0.00	0.35	33,88
50-10	31.07	7,62	2,25	00.00	0,31	0.24	00.00	00.00	00.00	0,03	41.54
02-03	8,97	4.15	2,82	0,52	0,33	0.26	00.00	00.00	0.00	0.00	17.04
40-80	1.75	1.22	1.46	0.46	0.35	0.13		00.00	00.00	00.0	5 11 12
20-40	0.65	0.12	0.26	0,05	0.07	00.00		00.00	0.00	0.00	1,15
90-20	0.83	0,15	00.00	00.00	0,00	00.00	00.00	00.00	0.00	0.00	0,98
20-90	00.00	00.00		00.00		00.00	00.00	00.00	00.00	00.00	0.00
07-08	00.00	00.00	00.00	00.00		00.00	0.00	0.00	00.00	0.00	0.00
60-80	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00	
01-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00	0.00	ن ، ن •
TOTAL	73.60	14,98	8.00	1.03	1.24		00.00	00.00	00.0	0.38	



REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-25	>22	
10-00	22.11	1:31	0.02	0.00	00.00	00.00	00.00	00.00	0.00	00.00	23.44
01-02	49.74	3.55	0,45	0.00	0.30	90.0	00.00	0,00	00.00	0.00	54,11
02-03	11.20	2.85	1.13	00.0	0.28	0.83	00.00	0.00	00.00	0.00	16.30
H0-E0	94.0	1,74	0,36	0,00	0,08	0.85	00.00	00.00	0.00	0.00	₩.08
04-0S	0.45	0.54	0.20	0.00	00.00	00.00	00.00	00.00	00.00	0.00	1.19
05-06	00.00	0.05	0.59	00.0	00.00	0.23	00.00	00.00	00.00		0.87
06-07		00.00		0.00	00.00	00.00	00.00	00.00	0.00		0.00
07-08		00.00		0.00	00.00	00.00		00.00		0.00	0.00
60-80	00.00	0.00	00.00	00.00	00.00	00.00		00.00	00.00	00.0	0.00
01-60	00.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.0
TOTAL	83,96	10.04	3,35	00.00	0.66	1.97	00.00	00.00	0,00	0,00	



REVERE BERCH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 30

HEIGHT (M)					PERIOD	(SEC)					TOTPL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	12,76	64.0	0.19	00.00	00.00	00.00	00.00	00.0	00.00	0.00	13.38
01-02	10.12	1.17	0.30	00.00	00.0	00.00	00.00	0.00	00.00	00.00	11.59
02-03	1.96	0.73	94.0	0.00	00.0	00.00	00.00	00.0	0.00	00.00	3,15
₩-60	0.25	0.19	0.17	00,00	0.00	00.00	00.00	00.00	00.00	0.00	0.60
04-02	0,02		0.08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.18
05-06	0.02	0.04	0.05	00.00	00.00	00.00	0.00	00.00	00.00	00.00	છ) 'ા
20-90	00.00	00.00		00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00
07-08	00.00	00.00		00.00	00.00	00.00	00.00	00.00	0,00	00.00	0.00
60-80	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.00		00.00	0.00
01-60	00.00	00.00	0.00	00.00	00.0	00.00	0.00	00.00	0.00	00.00	ბ∪" ა
TOTAL	25.13	2,64 1,21	1,21		00.00			00.00	0.00	0.00	

REVERE BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 60

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	13.73	0.47	0.12	0.02	0.02	0.05	0.00	0.00	0.02	0.14	14.58
01-02	11.61	1,98	0.45	0,02	0.12	0.07	00.00	00.00	0.00	0.03	14,29
02-03	2.29	1.21	0.57	0.07		0.20	00.00	00.0	0.00	0.00	4.46
h0-60	0,38	0.47	0.46	0.10	0.12	0.16	0.00	00.00	0.00	0.00	1.67
04-0S	0.04	0.13	0.21	0.08	0.03	0.05	0.00		00.00	00.00	0.54
02-08	0.04	00.00	0.15	0.13	00.00	0.05	00.00	00.00	00.00	0.00	0.37
06-07	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.0
60-80	00.00	00.00	00.00	00.00	_	00.00	00.00	00.00	00.00	0.00	0.00
03-10	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.0	00.0
TOTAL	23,10	4.26	1.96	0.42	0,40	0.58	00.00	0.00	0.02	0.18	

REVERE BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND FERIOD WAVE DIRECTION = 90

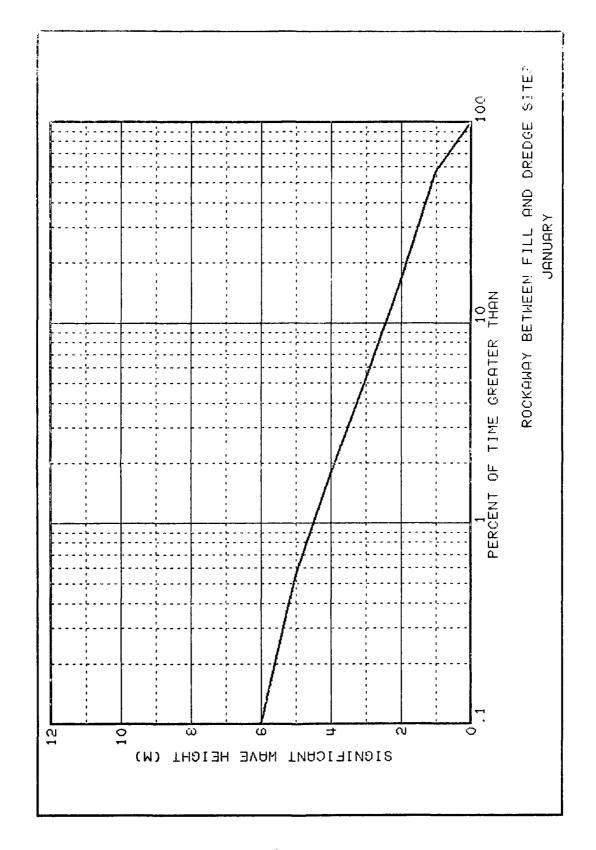
HEIGHT (M)				_	PERIOD	(SEC)					TOTAL.
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	12.81	0.84	0.65	0.07	0.04	0.00	0.00	0.00	00.00	0.00	14.41
50-10	12,25	5.03	0.75	0.17	0.17	00.00	00.00	0.00		00.00	15.37
02-03	1.74	1.20	0,33	0.15	0.08	00.00	0.00	0.00		0.00	8. 4.8
h0-60	0.33	64.0	0,23	0.09	0.07	0.00	00.00	00.00	00.00	00.00	1.21
04-05	0.17	0.12	0.13	0.05	0.05	00.00	00.00	0.00		00.00	0.48
02-06	01.0	0.01	0.05	00.00	0.04	00.00	00.00	0.00		00.00	0.18
20-90	00.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00		00.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00		00.00	00.00
60-80	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00		00,00	00.0
09-10	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
TOTAL	27.41	н. 69	2.11	0.52	0.41	00.00	00.00	0.00	00.00	00.00	

APPENDIX C: AVERAGE WAVE CLIMATE AT ROCKAWAY BEACH, N. Y.

- 1. Appendix C contains the following information for the Rockaway Beach, N. Y., project site:
 - <u>a.</u> Tabulations of monthly percent occurrence of wave-height/period combinations.
 - <u>b</u>. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - <u>c</u>. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JANUARY

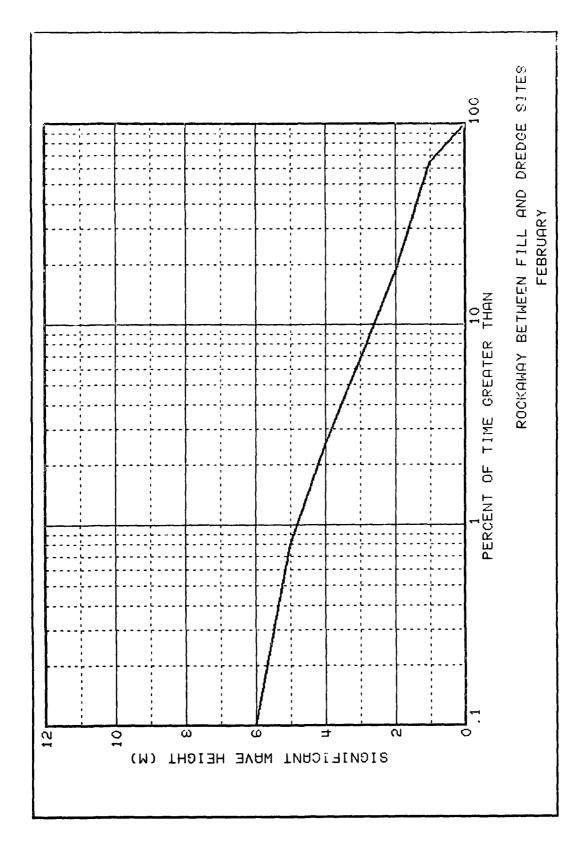
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	11-21	14-16	16-18	18-20	20-25	>22	
10-00	37.60	3.05	0,91	1111.0	0,42	00.00	00.00	00.00	0.31	0.25	42.39
01-02	28.81	6,16	4,01	0.77	0.32	0.22	00.00	00.00	0.19	90.0	40.57
02-03	2,19	5.11	ટ, 49	0.59		0.03	00.00	00.00	00.00	0.17	11,25
40-E0	0.25	1,85	0.82	0.19		00.00	00.0	00.00	00.00	0.00	84,6
04-05	0.48	0.73	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	1.21
05-06	00.00	0:30	0.00	00.00	0.25	00.00	0.00	00.00	00.00	0.00	
06-07	00.00	00.00	00.00	0.00	00.00	00.00	00.0	00.00	0.00	00.00	
07-08		00.00		0.00			00.00	00.00	0,00	00.00	
08-09	00.00	00.0	00.0	00.00	00.00		00.00	00.0	00.00	0,00	
09-10	00.0	0.00	00.00	0,00	00.00	00.00	00.0	00.0	00.00	0010	ن ک
TOTRI.	69.33	17.21	න දි	1.90		0.25	00.0	0.00	0,50	02.0	



ROCKRMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

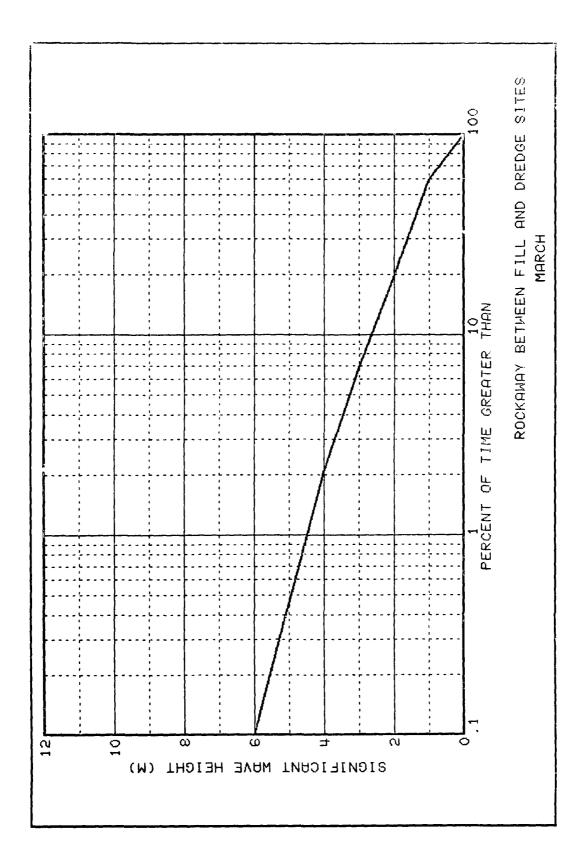
HEIGHT (M)				_	PERIOD	(SEC)					TOTRL
	<5-6	8-9	8-10	10-12	41-51 51-01	14-16	16-18	18-20	20-22	× 22	
10-00	29,56	2.85	1.18	94.0	0.86	0.16	0.01	00.00	0.34	0.16	35.54
01-02	30,20	10.16	3,32	0.80		01.0	0.14	0.00	0.28	00.00	46.12
02-03	3,32	5,86	10.1	0.79		0.05	00.00	0,00	0.01	0.00	
tio-80	1.23	2.13	0,39	0.17	0.16	00.00	00.00	00.00	0.11	0.00	4,18
04-05	0,29	0.83	0.31	0.17	90.0	0,03	00.00	00.00	0.04	00.00	1.71
05-06	00.00	0.26	0.16	0.10	0.16	0.13	00.00	00.00	0.00	00.00	0.79
06-07	00.00	00.00		00.00		00.00	00.00	00.00	0.00	0.00	0.00
07-08	0.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00
60-80	00.00	0.00	00.00	00.00	00.0	00.00	00.00	00.00	0.00	0,0	0.00
09-10	00.00	00.00	00.00	00.00	00.00	00.00	0,00	00.00	00.0	00.00	00.00
TOTAL	64.60	22,05	6,37	2,48	2.95	24.0	0.16	00.00	0.70	0.16	

The second secon



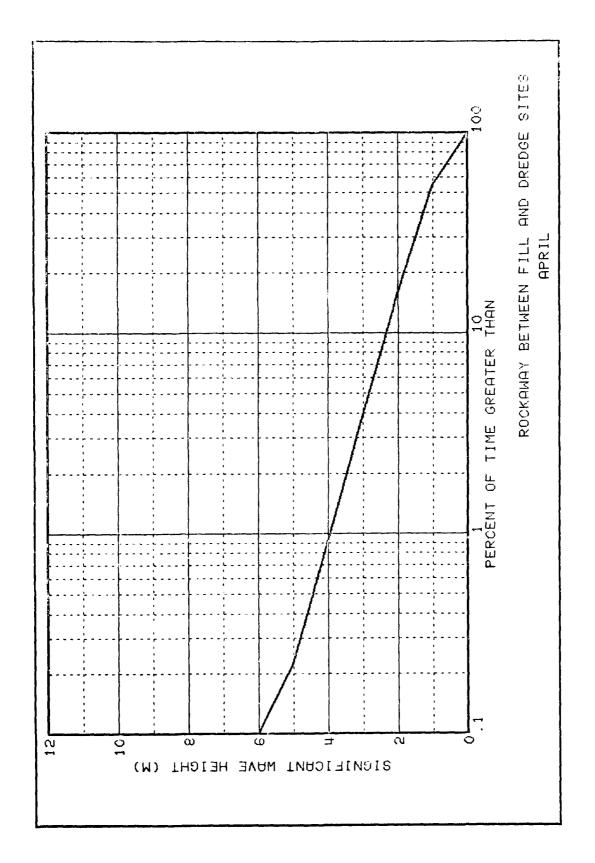
ROCKANAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT FAND PERIOD FOR MARCH

HEIGHT (M)					PER I OD	(SEC)					.OTAL
	45-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	\ 22 23	
00-01	34,65	2,85	1,06	0.44	0,58	0.48	00.00	00.00	0.13	0.52	40.70
01-02	27.27	7,76	3,54	0.87	0.44	0.04	0.00	00.00	00.00	0.0 ⁴	39.96
02-03	4,31	48.4	1.60	1,30	0.21	0.13	00.00	00.00	00.00	0.09	12.48
40-E0	0.86	2.61	0.96	0.16	0.15	0.04	0.00	00.00	00.00	0.00	4.79
30-40	00.00	1.21	0.13	0.14	0.05	0,09	00.00	0.00	00.00	00.00	19.1
05-06	0.00	0.24	00.00	0.08	00.00	00.00	0.13	0,00	00.0	00.0	0.45
20-90	00.00		00.00		00.00	00.00	0.00	00.00	0.00	00.00	00.00
07-08	00.00		00.00		00.00	00.00	00.0	00.00	00.00	00.0	00.00
60-80	00.00	00,00	00.00	00.00	00.0	00.00	00.0	0.00	0.00	_	0.00
01-60	00.00	00.00	0.00	0.00	00.00	00.00	0,00	00.00	00.00	0010	00,0
TOTAL	67,10	19,51	7.23	ල ස්	6i1.1	0.70	0.13	0,00	0.13	0.65	



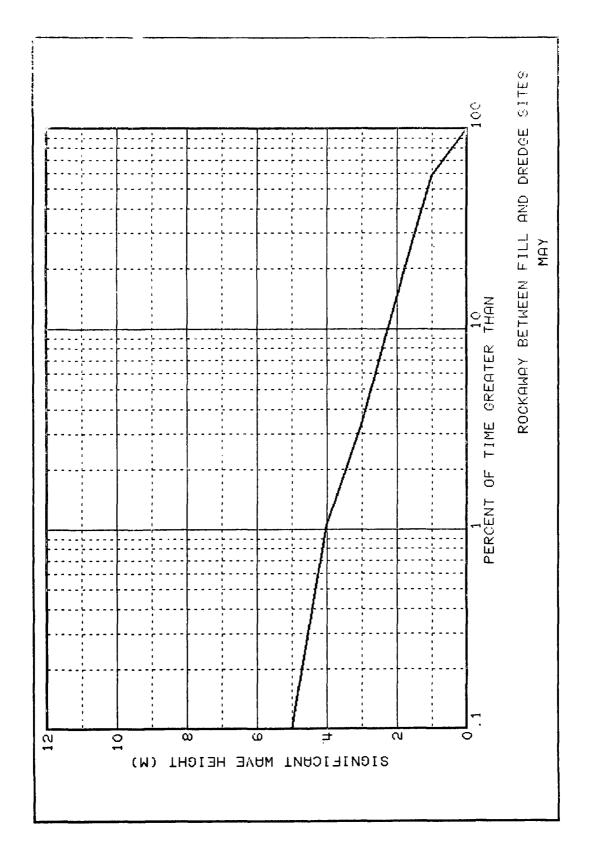
ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	5 88	
10-00	37.93	3.86	1,55	6,43	0.70	0.18	0.09	0.09	00.00	0.27	45.10
50-10	26.63	7.31	9.30	1.15	0.37	0.20	0.05	0.08	0.09	00.0	39.19
02-03	3.95	4.51	2.01	0.95	0.19		0.04	00.00	0.09	00.00	11.80
40-E0	0.49	2.11	0.34	10.0	0.05		00.00	00.00	00.00	00.00	9°00
04-05	00.00	0,64	00.00	00.00	0,05		0.00	00.00	00.00	0.00	0.69
05-06	00.00	0.19	0.00	00.00	0.04		00.00	00.00	0.00	00.00	0.23
06-07	00.00	00.00	0.00	00.00	00.00		00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	0.00	00.0	00.00		00.00	00.00	00.00	0.00	00.00
60-80	00.00	0.00	00.00	00.00	00.00		00.00	00.00	0.00	0.00	00.00
09-10	00.00	00.00	00.0	00.00	00.00		00.0	0.00	0.00	0°00	0,00
TOTAL	69.01	18,61	7,20	2,55	1.40		0,18	0.18	0,18	0.27	



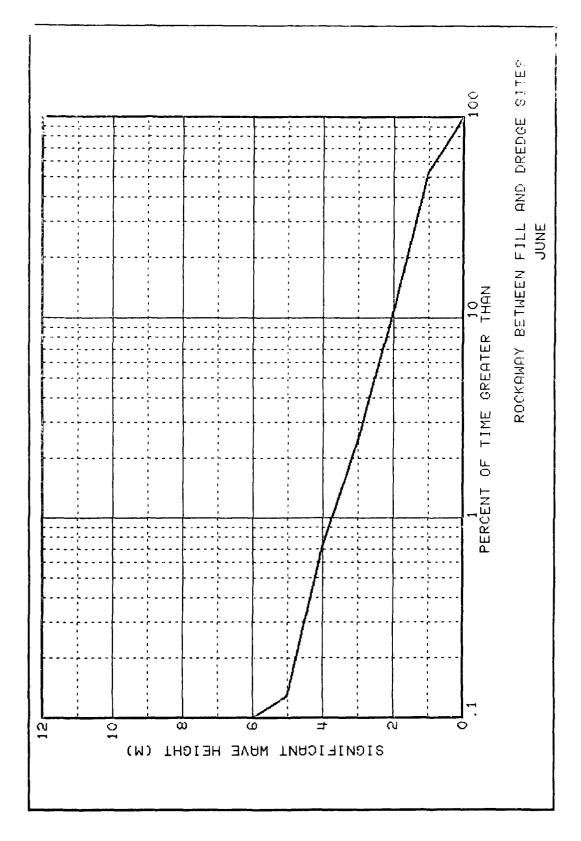
ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	33,44	3,46	2.72	0.52	0.17	0.05	0.00	0.00	0.17	0.81	41.35
20-10	32,29	7.66	3.15	0.80	0.13	0.20	00.00	00.00	0.03	0.07	44,32
02-03	4,21	4,75	1,53	0,23		90.0	0.00	0.00	0.00	0.13	10.91
03-0H	0.01	1.82	0.28	0.17		00.00	0.01	0.00	0.00	00.00	2.36
04-05	0.09	0,76		0.00	0.04	0,00	0.08	00.00	0.00	00.00	0.97
05-06		0.07		0.00	00.00	00.00	0.01	00.00	00.00	00.00	0,08
06-07	0,00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	
07-08	0,00	0.00	00.00	00.00	00.00	0.00	0.00	0.00	00.0	00.00	0.00
60-20	00.00	00.00	00.00	00.0	00.00	0,00	00.0	00.00	00.00	0,00	0,00
09-10	00.00	00.00	0.00	00.00	00.0	0,00	03.0	0,00	00.00	0.00	00.00
TOTRL	70,04	18,52	7,63	1.72	0,40	0.30	0.10	00.0	0,20	1,01	



ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF NAVE HEIGHT AND PERIOD FOR JUNE

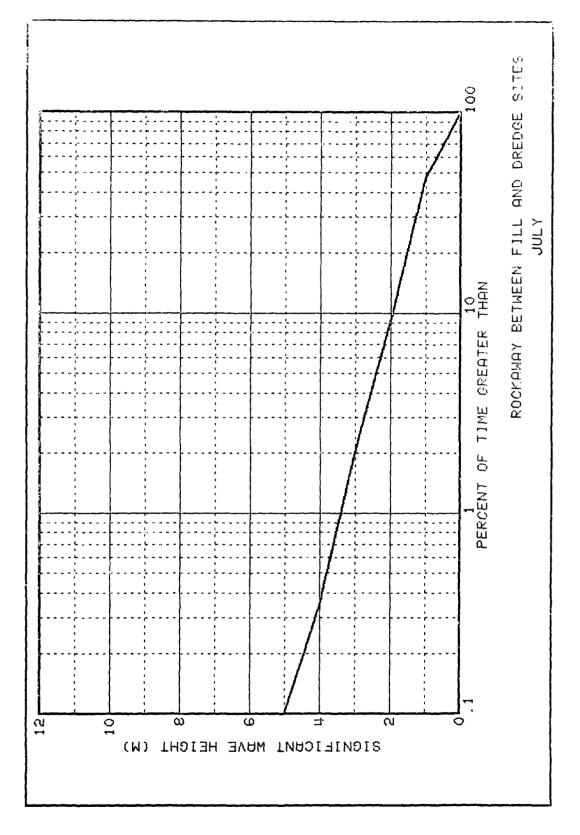
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	න-හ	8-10	10-12	12-14	14-16	81-91	18-20	20-22	× 22	
10-00	39,93	3,13	2,06	0.72	0.21	0.23	01.0	00.00	0.57	0.47	47.53
01-02	29,98	8,25	2.50	0.71	0.29	0.11	00.00	00.00	0.03	0.10	41,98
02-03	2,15	4.85	0.44	0.18	0.22	01.0	00.00		00.00	0,13	8.06
40-E0	0.29	1.18	0.00	0.12	0.08	0.03	00.00		00.0	00.00	1.72
04-05	00.00	0.39	00.00	0.07	0.05	90.0	0.00	00.00	00.00		0.59
02-06	00.00	00.00	00.00	00.00	0.05	0,03	0.00		00.00		0.13
06-07	00.00	00.00	00.00	00.00	00.00	00.00		00.00		0.00	0.00
07-08	00.0	0.00	00.00	0.00	00.00	00.0		00.00	00.00	0.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	ου·υ
09-10	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00	0°0
TOTAL	72,40	17.30	5,00	1,00	0.90	0.70	0.10	00.0	0.60	0.70	



ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
00-01	45.09	2.83	2,42	0.61	0.03	0.22	0.02	0,00	0,62	0.85	52.68
01-02	28.06	6.82	2.40	0.63	0.08	00.00	0.09	00,00	60.0	0,14	38.25
02-03	1.59	4.76	0,55	0.16	00.00	00.00	0,00	00.0	0.00	0.00	7.06
40-E0	0.21	1.33	0.11	0,02	00.00	00.00	00.00	00.00	00.00	0.00	1.66
04-05	00.00	0.35	0.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00	0.35
05-06	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00
06-07	0.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00
07-08	00.00	00.0	00.00	00.00	00.00	0.00	00.0	00.00	00.00	0.00	00.0
60-80	00.00	00.00	00.0	00.00		00.0	0,00	00.0	00.00	00.00	00.0
09-10	00.00	00.00	00.00	00.00	_	00.00		0.00	0,00	00.00	0.00
TOTAL	74,94	16.08	5,48	1, u2	_	0.22	0.11	0.00	0.66	0.50	

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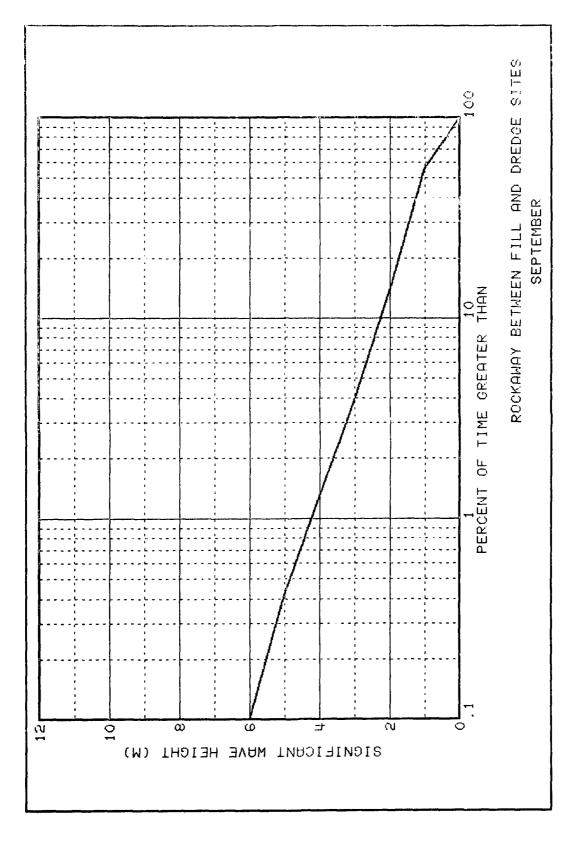


ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)				_	PER I OD	(SEC)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	41.50	4,19	1,65	1.28	0.49	0.35		0.00	0.21	0,45	50,23
01-02	28.71	8.04	2,46	0,52	0,42	0.21		00.00	0.04	0.04	40.44
02-03	1.07	5,14	0.64	0.16	0.25	0,05	0.05	0.00	00.00	0.00	7.37
40-E0	0.12	1.26	50.0	00.00	0.07	00.00	0.07	00.00	00.00		1.53
04-05	00.00	0,45	00.00	00.0	00.00	00.0	0.00	00.00	00.00	00.00	0.45
02-06	00.00	00.00	0,00	00.00	00.00	0.00	0.00	0.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	00.00
07-08	00.00	00.00	0,00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	00.00
60-80	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00
03-10	00.00	00.00	0.00	00.00	00°0	00.00	00.00	00.00	0°00	00.00	00.00
TOTAL	71.40	19.07	4,77	33,1	1,22	0.61	0,25	00.00	0,25	Gh 10	

ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
00-01	37.77	2,47	1,25	0.89	1,06	0.16	0,13	00.00	0.13	0.40	44,26
01-02	30.77	7.16	2,41	0.61	0.90	0.11	0.00	00.00	0.00	00.00	41.95
02-03	2,69	4,62	1,57	0.68	0.29		0.00	0.02	00.00	00.00	9.89
03-04	0,12	1.58	0,34	0,42	00.00	0,04	0.00	0.10	00.00	0.00	8,60
04-05	00.00	0.35	00.00	0:00	0.07	0,09	00.00	0.01	0.06	00.00	0,88
02-06	00.00	0.27	00.00	0.02	90.0	00.00	00.00	00.00	0.07	00.00	0,42
06-07	00.00	00.00	00.00	00.00	0.00	0.00	00.00	00.00	00.0	0.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
60-80	00.00	00.00	00.00	00.0	00.00		00.00	υ· υ	00.00	0.00	0.00
03-10	00.00		00.00	00.00	00.0	00.00	0,00	00.00	00.00	0.00	00.00
TOTAL	71.35	_	5,57	ري در در	60°4			0,13	0,27	0; 1;0	

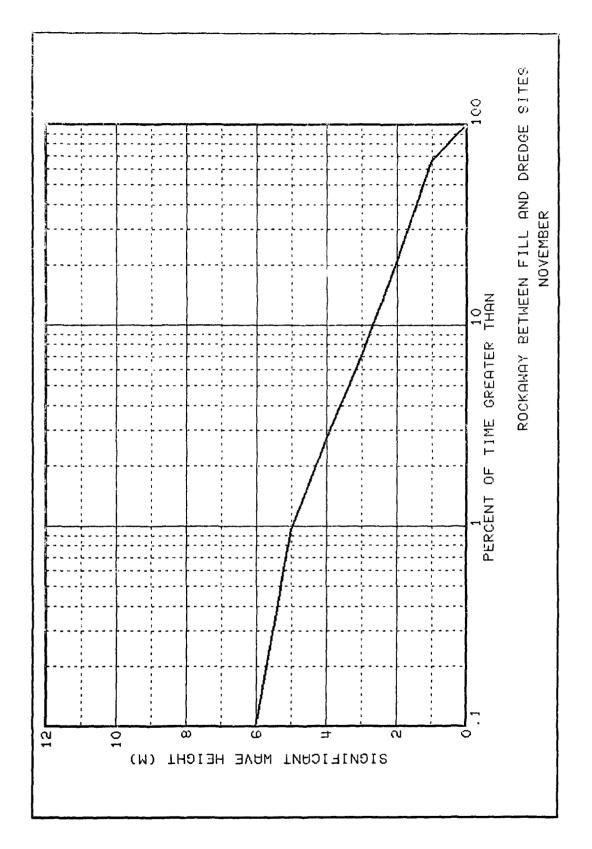


ROCKAMAY BETWEEN FILL AND DREDGE SITES COMULATIVE SEA / SMELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×22×	
10-00	34,45	3.76	1.61	0.18	0.26	0.13	00.00	0.26	0.43	0,23	41.33
01-05	28.85	7.92	3.77	0.33	0.18	00.00	00.00	00.00	0.10	0.17	41.31
02-03	4,62	5,30	1.96	05.0	0.22	0.20	0,00	00.00	0.00	0.00	12,50
03-0H	0.25	1.98	0.62	0.29	00.00	0.07	00.00	00.00	00.00	0.00	3,20
90-40	00.00	0,85	0.13	0.07	00.00	00.00	00.00	00.00	0.00	0.00	1.05
05-06	00.00	0,48	00.00	00.00	00.00	00.00	0.13	00.00		00.00	0.61
06-07	00.00	00.00	0.00	00.00	0.00	0.00	00.0	00.00		0.00	00.00
07-08	00.00	0.00	00.0	00.00	00.00	00.00	00.00	00.00	00,00	00.0	0,00
60-80	0.00	00.00	00.00	00.0	00.0	00.0	00.0	00.00	00.00	0.00	0,00
03-10	00.00	0,00	00.00	00.0	00.00	00.0	0,00	00.00	0.00	00.0	0010
TOTAL	68.17	20.23	8,03	1.06	0.68	0,40	0,13	0,26	0.59	0h.0	

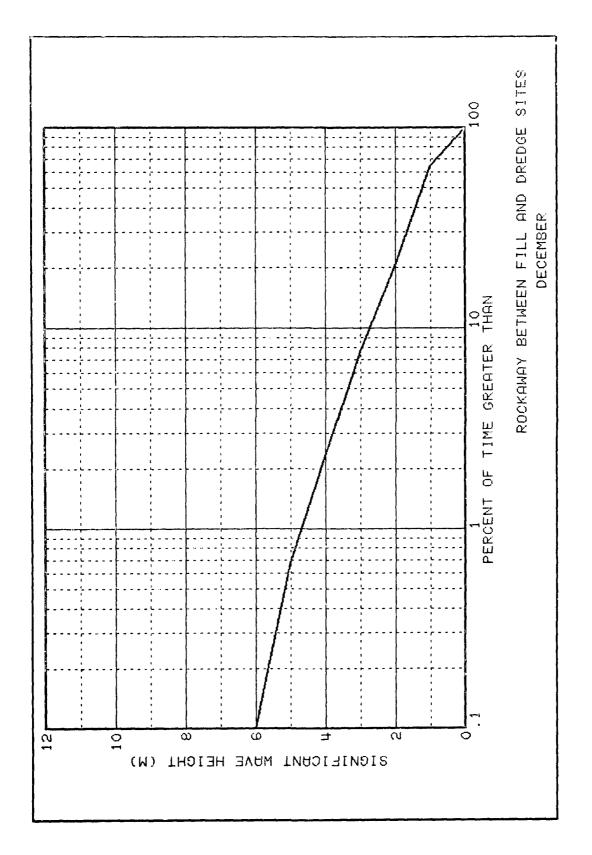
ROCKRAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SMELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	2022	× 22	
10-00	28,61	2.20	98.0	0.56	0.17	0.08	0.00	00.00	0.51	0.51	33,52
50-10	32,11	86.98	3,69	2.12	0.14	0.58	00.00	00.00	0.33	0.00	45,96
02-03	60.4	5,26	8,39	1.60	0.03	30°0	0.00	00.00	00.00	0.00	13,45
03-04	0.51	2,58	0.86	0,29	00.00	0.11	0.00	00.00	00.00	00.00	4,35
04-0 2	0.17		0.29		0,0	0.04		00.00	00.00	0.00	1.76
05-06	0,15	0.43	00.00		0.25		00.00	00.00	00.00	00.00	0.96
20-90	00.00	00.00	00.00	00.00		00.00		00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	00,0	00.00		00.00	00.0	00.00	00.00	0,00
08-09	00.00	00.00	00.00	00.00	0,00	0.00	00.00	00.0	00,0	0.00	00.00
09-10	00.00	00.00	00.0	00.00	0.00	00.0	00.00	00.00	00.0	00.0	O, 0
TOTAL	65,65	18.61	9,12	11,57	0.68	1.02	00.00	00.0	0.85	0.01	



ROCKAMAY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	3-10	10-12	12-14	14-16	16-13	18-20	20-22	>22	
10-00	27.65	3,45	2,33	1:11	0.37	0.43	00.0	00.00	0.23	0.00	35,57
01-05	26,62	10.34	5.79	1.22	0.03	0.04	00.00	00.00	0.00	0,00	44.09
02-03	2,52	7,57	2,11	0.39	0.03	0.12	00.00	00.0	00.00	0,00	12.73
03-04	0,89	2,74	1.17	0.14	0.21	0.12	0.03	0.00	00.00	00.0	5,30
04-05	0.00	1.00	00.00	0.16	0.20	00.00	0.13	00.00	01.0	0.00	1,64
90-50	00.00	6h'0	00.00	00.00	0,04	0.00	0.02	00.00	0.13	00.00	0.68
20-90	0.00	00.00	00.00	00.00	00.00	00.00	0,00	00.00	00.00	00,0	0.00
07-08	00.00	00.00	00.00	00.00	00.00	0.00	00.0	00.00	00.00	00.0	0.00
08-09	0,00	00.00	00.00	00.00	00.00	00.0	0,00	00.00	00.0	0,0	0.00
03-10	0.00	00.0	00.00	00.00	0,00	0.00	00,00	00.00	0,00	0),0	0,00
TOTAL	57,63	25.53	11,40	ව ්ර	0,93	0,70	0.23	0.00	SH.O	00.00	



ROCKAMAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEG / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
MAYE DIRECTION = 50

HEIGHT (M)				_	PERIOD	(SEC)					TOTPL
	42-6	8-8 8-8	8-10	10-12	h1-21	14-18	16-18	18-20	20-22	>25	
10-00	7,30	00.00	00,0	00.00	00.00	00.00	00.00	0.00	00.00	00.00	7.30
01-05	7,33	00.00	00.0	00.00	0.00	00.00	00.0	00.00	00.00	00.00	7.33
02-03	1.13	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	1.13
93-04	0.12	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.12
90-02	0.04	00.00	00.00	00.00	00.0	00.0	00.00	00.00	00.00	0.00	0.04
05-06	00.00	00.00	00.00	0.00	00.0	00.00	00.00	00.0	00.00	00.00	00.00
08-07	00.00	00.00	00.00	00.00	00.0	00.0	00.0	00.00	00.00	00.00	0.00
07-08	00.00	00.00	00,00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
60-80	00.00	0.00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	00.0	0.00
01-60	00.0	00.00	00.0	0,00	0.00	00.00	00.0	00.00	00.00	0,00	0.00
TOTAL	15.99	00.00	0.00	00.00	0.00	00.00	00.00	00.0	0,00	00.00	

ROCKAMAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 120

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	Ø 8	8-10	10-12	12-14	111-11	16-18	18-20	20-22	>22	
10-00	6,30	1.83	0.50	0.08	0.10	0.05	00.00	00.00	0.04	0.03	04.6
01-05	4.77	4.11	1,43	0.24	0.09	0.04	10.0	00.00	0.02	0.04	10.79
02-03	0,41	2.01	0,95	o; ⊙	0.10	0.03	00.00	0.01	00.00	0.04	3,93
h0-80	0.07	S9.0	0.32	0.10	0,05	0.02	00.00		0.01	00.00	1.20
04-05	00.00	0.13	0,05	0,05	0,04	0,03	0.02		0.01	0.00	0.32
05-06	00.00	0,03	0.01	0.01	0,05		0.01		0.01	00.00	0.20
06-07	00.00	00.00	0.00	00.00	00.00		00.00		00.00	00.00	00.00
07-08	0.00	00.00	00.00	00.00	00.00	00.0			00.00	00.00	0.00
ତେ-ସ0	00.00	0.00	00.00	00.00	0.00	00.0	00.00		00.0	00.00	00.0
00-10	00.00	0.00	00.00	00.00	00.0	00.00	00.0	0,00	υ» τυ	00.00	υ° 00
TOTAL	12.05	3.77	9,31	0,05		0,17	0.04	0.01	٥. د	0.11	

ROCKAMEN BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREGUENCIES OF WAVE HEIGHT AND PERIOD
NEVE CIRECTION = 1.50

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-6	හ ල	3-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	7.78	0.36	0,43	0.57	0,34	0.17	0,05	0.03	0.26	0.41	10.39
01-02	6,21	0.77	0.77	09.0	0.28	0.11	0.05	0.01	90.0	0.02	18,84
02~03	0.58	1,41	0,31	0.20	0.10	0.05	00.00	0,00	0.01	00.00	2,66
40-E0	0,11	0.73	0,09	0.05	0,02	0.01	10.0	00.00	00.00	00.00	1,00
04-05	0.01	0.45	0.01	0.01	0.01	00.0	00.00	00.00	00.00	00.00	0.50
05-06	00.00	90.0	0.00	00.00	00.00	0.01	0.01	00.00	0.00	00.00	0.10
06-07	00.00	00.0	00.00	00.00	00.00	00.00		00.00	0.00	0.00	0.00
07-08	0.00	00.00	00.0	00.0	00.0	00.0	00.00	00.0	0.00	00.00	00.0
08-09	00.0	00.0	00.0	00.0	00.00	00.0	00.00	00.0	00.00	00.00	0.00
01-60	00.00	00.0	00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	0.00
TOTAL	14,53	3,70	1.60	1,13	0,75	€*O	0,09	hō • o	ne.o	6,43	

ROCKAMAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 180

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	14.56	1.04	0,78	00.00	00.00	00.00	00,00	0.00	0.00	00.00	16.38
01-05	10.90	2.93	0.95	00.00	00.00	00.00	00.00	00.00	0.00	00.00	14.77
02-03	0.93	1.65	0.17	00.00	00.00	٥٠.٥	00.00	00.00	0.00	00.00	2.79
10-60	01.0	0.52	0.01		00.00	00.00	00.00	00.0	00.00	00.00	0.63
04-05	10.0	0.11	00.00		00.00	00.00		00.00	0.00	0.00	0.12
05-06	0.01	0.04	00.00		00.00	00.00		00.00	0.00	00.00	0.05
06-07	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00,00	00.00	0.00	0.00
07-08	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00
08-09	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0,00	00.00	0.00
03-10	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	00.00	00.0
тоты	20, ଅନ	6,23	1.00	00.00	00.00	0,00	00.0	00.00	00.00	00.00	

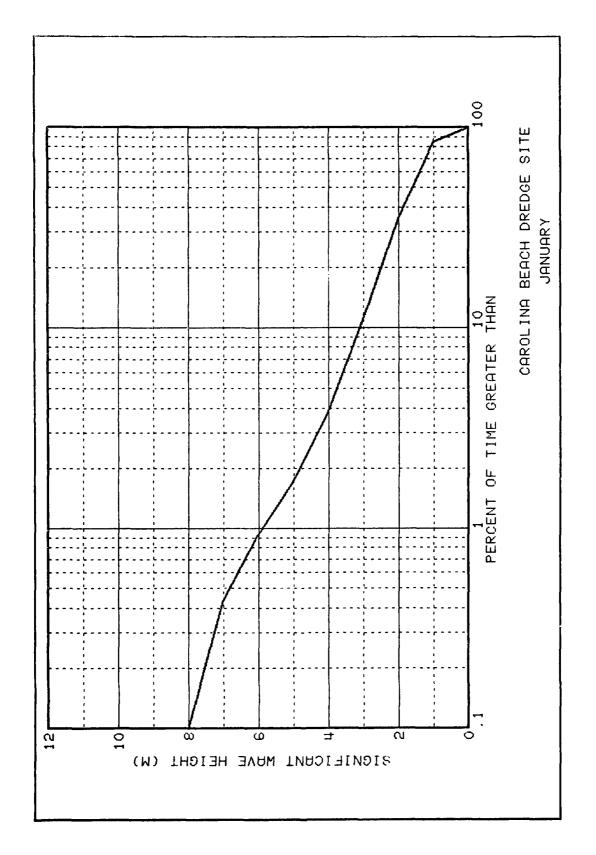
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APPENDIX D: AVERAGE WAVE CLIMATE AT CAROLINA BEACH, N. C.

- 1. Appendix D contains two sets of the following information. One set is for the sand borrow areas at Carolina Beach, N. C., and the other is for the fill area:
 - a. Tabulations of monthly percent occurrence of wave-height/ period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - \underline{c} . Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

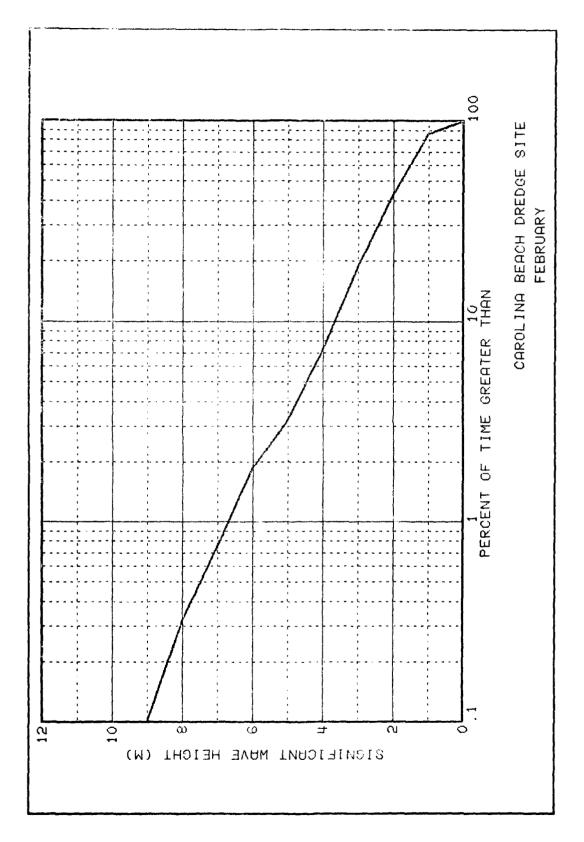
CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-2>	2-9	60 -0	10-11	12-13	14-15	16-17	18-13	20-21	721	
10-00	12.69	1.49	0.58	0.14	0.08	00.00	00.00	00.00	0.09	0,22	15,29
50-10	36.45	9.58	89.5	0.43	0.31	0.11	0.00	0,00	0.13	0.23	49.79
62-63	10.17	5.68	4.49	1.69	0.67	0.13	00.00	0.00	0.05	0.01	23.88
40-E0	:.52	2.00	1.52	1.36	0.63	0.17	00.00	00.00	00.00	0.00	7,19
04-0S	0.27	0.34	0,66	0.69	11.0	0.02	0.00	00.00	00.00	0.00	2.13
05-06	0.27	0.09	0.15	0.14	0.14	00.00	00.00	00.00	00.00	0.00	0.79
06-07	0.04	90.0	2.07	0.09	0.12	0.03	00.00	00.00	0.00	0.10	0.50
07-08	0.11	0.12	0.01	0.05	0.04	0.04	0.00	00.00	0.00	0.03	0.39
60-80	0.01	0.01	0.00	00.0	0.02	00.0	00.00	0.00	0.00	0.00	0 •02
09-10	00.00	0.00	00.0	00.00	00.00	00.0	00.00	00.00	00.00	00.0	OJ J
TOTAL	61.53	61.53 20.05 10.33	10.33	u, 59	2,14	6h.0	00.0	00.00	0,25	0.61	



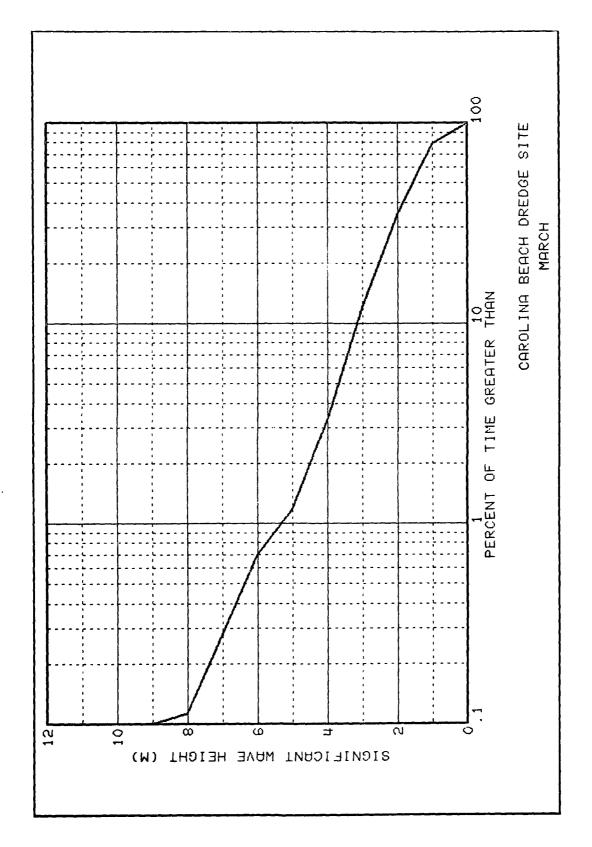
CHROLING BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	၈ မ	11-01	12-13	14-15	16-17	18-19	12-07	>21	
10-00	11.55	1.25	0.25	0.08	0.10	0.00	00.00	00.00	0.14	0.16	13.53
01-05	28,90	10.27	2,38	0.71	0.50	0.16	0.00	00.00	0.04	90.0	43.62
02-03	7.53	8.76	5,37	1.75	0.53	0.14	0,05	00.00	00.00	0.03	24.25
93-04	2.56	2.44	3,18	2.30	0.48	0.24	0.13	00.00	00.00	0.00	11,33
04-05	0,95	0.78	1.21	0,58	0,41	0.08	0.03	00.00	00.00	0.00	4.03
05-06	0,25	0.20		0.28		0,08		00.0	00.00	00.00	
06-07	0.46	0.07		0.09		0.04	0°0	00.00	00.00	00.0	1,11
07-08	0.10	0.00	0.18	0.09	0.05	0.03		00.00	0.00	0.00	6,03
60-80	0.01	0.00	0.04	0.08	0.10	0.03	00.00	00.00	0.00	0.00	0.26
03-10	00.00	0.00	0,05	00.00	0.01	0.00	00.00	00.00	00.00	0.00	90.0
TOTAL	52,32	23.77	13.73	5,95	2.60	08.0	0.31	00.0	0.19	0.25	



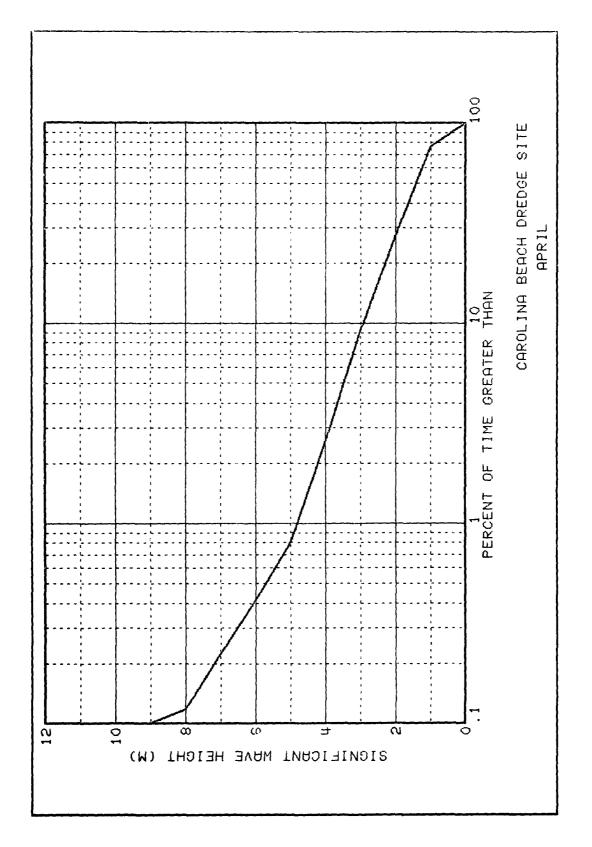
CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-5	6-7	8-8	10-11	12-13	14-15	16-17	18-19	20-21	721	
10-00	18.53	1.63	0.40	0,19	0,05	0.00	00,0	00.00	0.08	0,29	21.20
50-10	30.51	99.66	2.84	0.77	0.18	0.08	0.04	0.08	90.0	0.15	44.37
02-03	7.67	7.76	4.97	. 39	0.31	0.17	0.01	0.06	10.0	10.0	22,34
40~60	2,30	2.26	2.52	1.28	0.30	0.09	00.0	0.07	00.00	00.00	ଧ ଓ
04-05	0.55	0.71	0.31	0,31	0.14	80.0		00.0		00.00	2.10
02-06	0,12	0.11	90.0	0.04	0,08	0.04		00.00		00.00	34.0
20-90	0.01	0.09	0.04	0,13	0.07	00.00	0.07	00.00	00.00	0.00	0.4S
07-08	0.05	0.10	00.0	0.02	00.0	00.00	0.00	0,00	00.00	00.0	0.17
60-80	00.00	0.02	00.00	0.05	00.00	0.01	00.00	00.00	00.00	00.0	0.07
09-10	00.00	00.00	00.00	00.0	00.00	0,04	0,00	00.00	00.0	00.00	90°0
TOTAL	59.75	22,34	11,15	4,17	1.12	0.51	0.15	08.0	0.15	97.0	



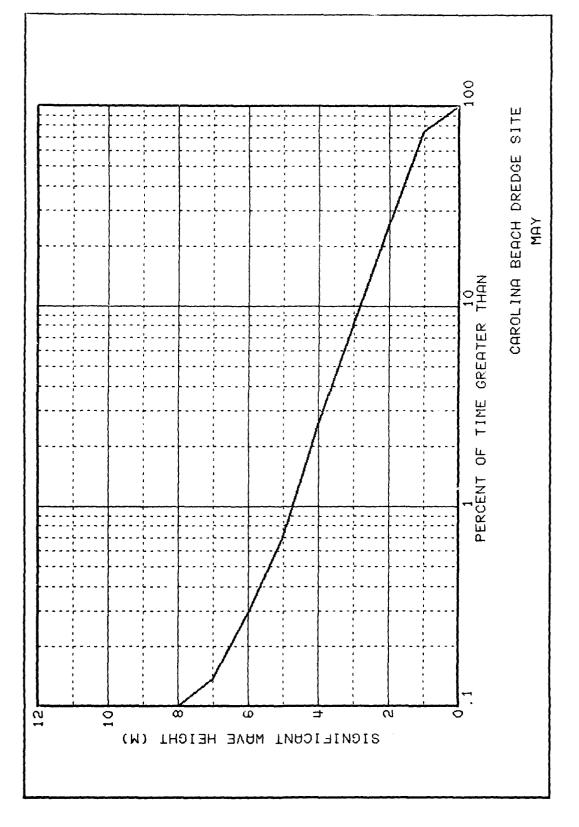
CHROLINA BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	၈- ၈	10-11	12-13	1 m-15	16-17	18-19	20-21	>21	
10-00	19,95	1.81	0.71	0.13	0.07		00.00	00.00	0.16	0.57	23,39
01-02	34,74	10.62	2,54	0.74	0.29		0.09	00.00	0.16	0.10	49.34
02-03	6,68	6,86	3,05		0.30		0.00	00.00	0.04	00.00	18.12
to-60	2,18		1,57		0.25	90.0	10.0	0.00	0.07	00.00	6,60
04-05	0.21	0.45	0,39	0,38	0.18		0.09	0.01	0.00	0.00	1,74
05-06	0.01	0,03	0.07	0.13	0.03		00.00	0.04	00.00	00.00	0.38
08-07	00.00	00.00	0.00	0.07	0.04		00.00	0.04	00.00	0.00	0.19
07-08	0.05	00.00	00.00	00.00	10.0		0.01	0.01	00.00	0.00	0.11
60-80	00.00	00.0	00.00	0.01	0.00		0,04	00.00	00.00	00.00	0.08
01-60	00.00	00.00	0.00	о°0	00.00	00.00	00.00	00.00	00.00	00.00	0.04
TOTAL	63,82	21.63	8,33	3,18	1,16	en o	0,24	0.10	6,43	0.67	



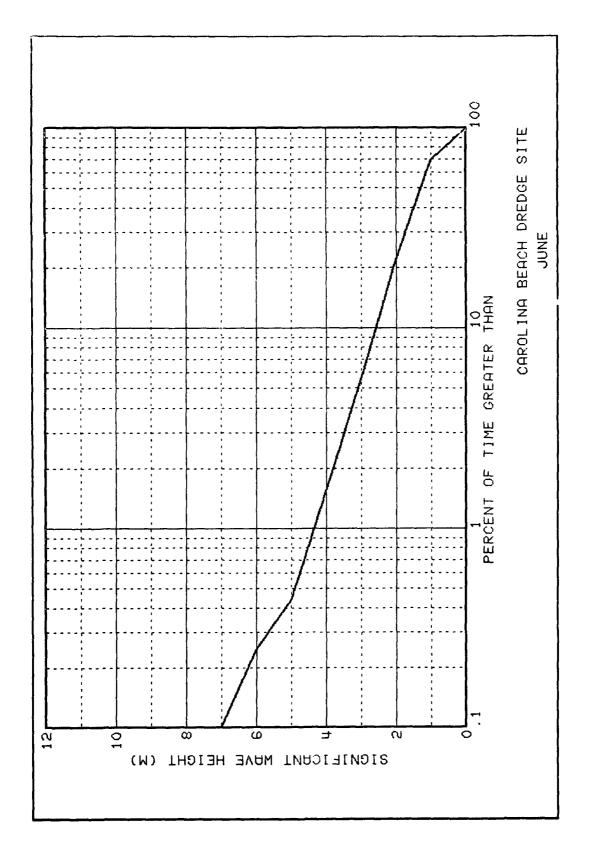
CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	6-8	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	22.00	1.91	0.71	0.21	0,15	0.05	00.00	00.00	0.04	0.25	25.31
01-02	33.68	11,53	2,80	0.69	0.18	0.14	0.00	0,02	0.07	0.16	49.29
05-03	6.54	6.08	3,17	1.04	0.13	0.18	00.00	0.02	90.0	90.0	17.28
40-E0	1.27	1.90	1.57	0.54		0.17	00.00	00.00	0.01	00.00	5.56
0H-05	0.24	0,49	0.47	0.27	0.16	0.15	0.04	00.00	0.03		1.85
02-06	0.01	0,12	0.16	90.0	0,09	00.00	00.00	00.00	00.00	00.00	14.0
06-07	00.00	90.0	10.0	0,08	0.01	00.00	00.00	00.00	00.00	0.00	0.16
07-08	00.00	0.01	00.00	0.04	00.00	0.01	00.00	00.00		00.00	90.0
60-80	00.00	00.00	00.00	00.00	00.00	0.03	00.00	00.00	0.00	00.00	0.03
01-60	00.00		00.00		0.03	00.00	00.00	00.00	00.00	00.00	0.09
01<	00.00		00.00	00.0	0,02	00.00	00.00	00.00	00.00	00.00	SO.0
TOTAL	63.75	22,10	დ დ	9 00	0,87	0.73	0.04	0.04	0.22	0.47	



CHROLLINA BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

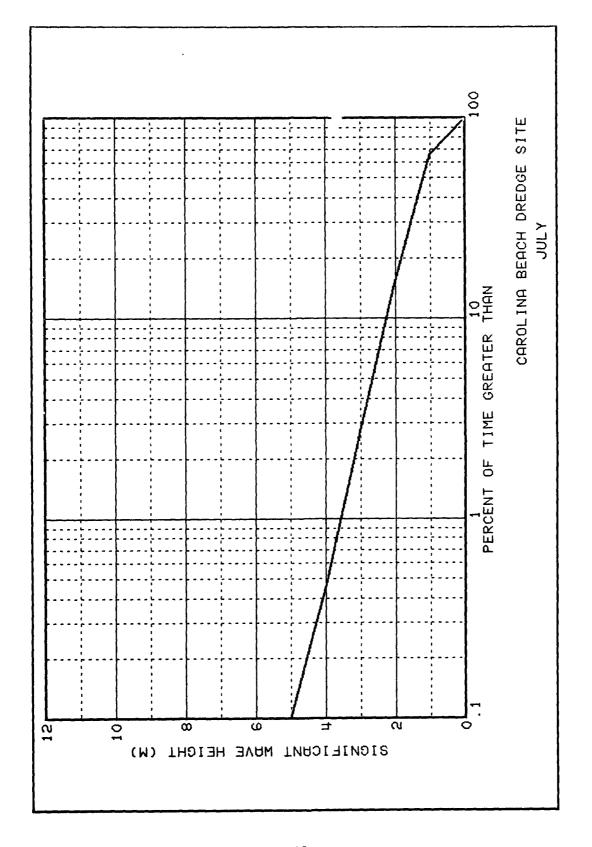
		CONOLMITAE SEM / SMELL TRESCENCIES OF MAYE ALIGHE MAY FANGY FOR CONT	N SMELL		ZCIES (201	}	
HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-5	6-7	თ ი	10-11	12-13	14-15	16-17	18-19	20-21) 21	
10-00	26.68	2,35	0.69	0,08	0.03	0.01	0.00	00.00	0.24	0.77	30.86
01-02	91.72	11.36	2,85	0.71	0.34	90.0	0.00	0.04	0.12	0.21	47.40
02-03	5.58	5,91	3.07	1.11	0.27	0.18	0.00	00.00	0.05	0.04	16.19
40-E0	0.36		1.28	0.62	0,11	0.07	0.03	0.00	0.01	0.00	4.0≥
04-05	0.09	0.35	0.14	0.25	0.16	0.05	0.02	00.00	0.03	00.00	1.10
05-06	00.00	0.05	10.0	\$0.06	0.05	0.05	00.00	00.00	00.00	0.00	0.13
06-07	0.04	00.00	0.00	00.00	0.08	0,05	0.00	0.00	00.00	00.00	0.18
07-08	00.00	00.00	00.00	00.00	00.0	0.02	00.00	00.00	00.00	00.00	0°0
60-80	00.00	00.00	00.00	0.01	00.00	00.00	0.00	00.00	00.00	0.00	0.01
01-60	00.00	00.00	00.00	60,0	0.00	٥٥٠٠	0.00	00.00	00.0	00.00	0.03
TOTAL	64,48	21,55	8.04	ر. 89	1,02	0.51	0.04	₽0.04	0.42	1,02	



CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT RND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	6	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	29.21	2,01	1,30	0.18	0.21	90.0	0.10	00.00	0.56	0.81	34,45
20-10	hh'ee	11,95	3.12	0.49	0,31	90.0	10.0	0.04	0.23	0.45	50,10
02-03	4.11	5.27	≥,09	0.80	0.20	0.07	00.00	0.02	0.08	0.07	12,69
40-E0	0.47	1.06	0.17	94.0	0.09	90.0	0.00	00.00	00.00	00.00	2.31
04-05	0.01	90.0	0.05	0,04	0.15	0.04	00.00	00.00	0.00	00.00	0.36
32-06	00.00	0.00	00.00	00.00	0.03	00.00	00.00	00.00	00.00	0.00	o.0
06-07	00.00	00.00	00.0	00.00	00.00	0.02	00.00	00.00	0.00	00.00	0.05
07-08	00.00	00.00	00.00		00.00	0.03	00.00	00.00	00.00	0.00	o.0
60-80	0.00	0.00	0.00	00.00	00.00	00.0	0,00	00.00	00.00	00.0	0.00
01-60	00.00		00.00	00.0	00.00	00.00	00.00	00.00	0,00	0.00	00.00
TOTEL	67.24	67.24 20.35	6.72	6.72 1.97	0.99	0.35	0.12	0.06	0.87	1,33	

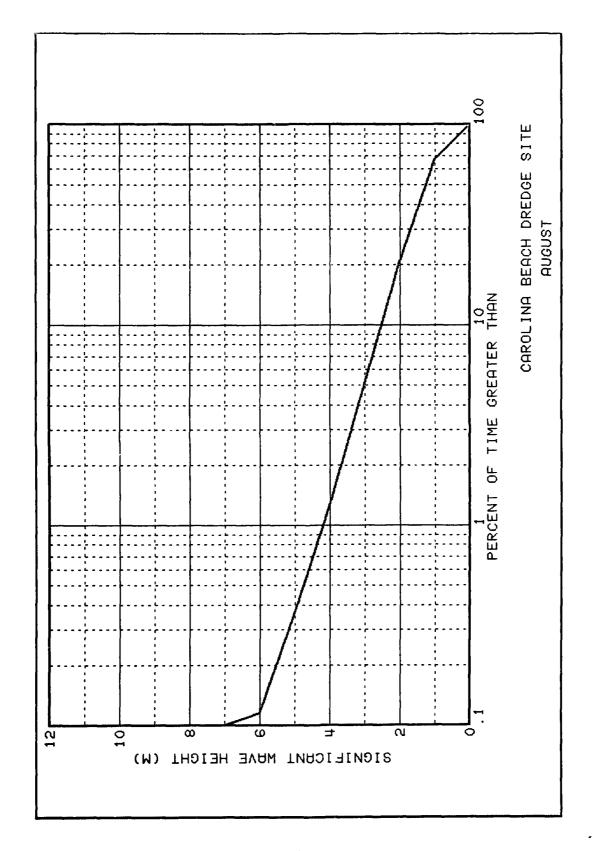
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CAROLINA BEACH DREDGE SITE CUMULATIVE SER / SWELL FREGUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

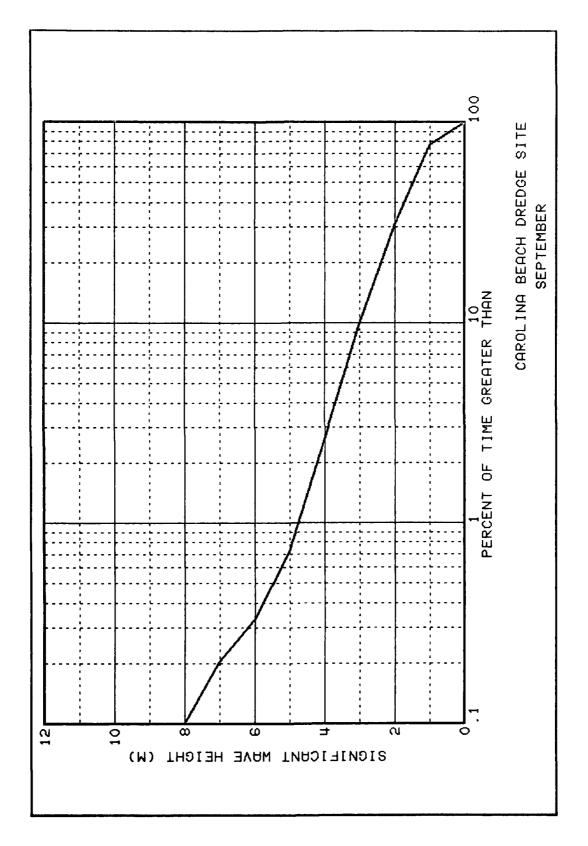
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-5	6-7	6 - 8	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	29.16	2.03	0.66	0.24	01.0	01.0	0.09	00.00	0.37	0,39	33.12
20-10	30,67	10.69	3,20	0,83	0.17	0.12	00.00	0.04	0.05	0.22	46.00
02-03	4.86	5.62	3,00	1.53	94.0	0.21	00.00	0,00	0.01	0.04	15.74
H0-E0	0.77	1.33	0,69	0,65	0,26	0.11	00.00	00.00	0.03	0.01	3.87
04-05	0.29	0.18	0,25	0,08	SO.0	0.02	0.00	0.00	00.00	₽0.0	0.89
05-06	0.05	0.07	0.05	0.05	0.03	00.00	00.00	00.00	00.0	00.00	0,25
06-07	00.00	0.01	00.00	0.05	0.02	00.00	00.00	00.00	0.00	00.00	0.08
07-08	00.00	00.00	0.00	0.04	00.00	0.00		00.00		00.0	0.04
60-80		00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
01-60	00.00	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.0	00.00
TOTAL	65,81	13,93	7,86	3,47	1.06	0.55	0.0	0.05	0,46	0,69	

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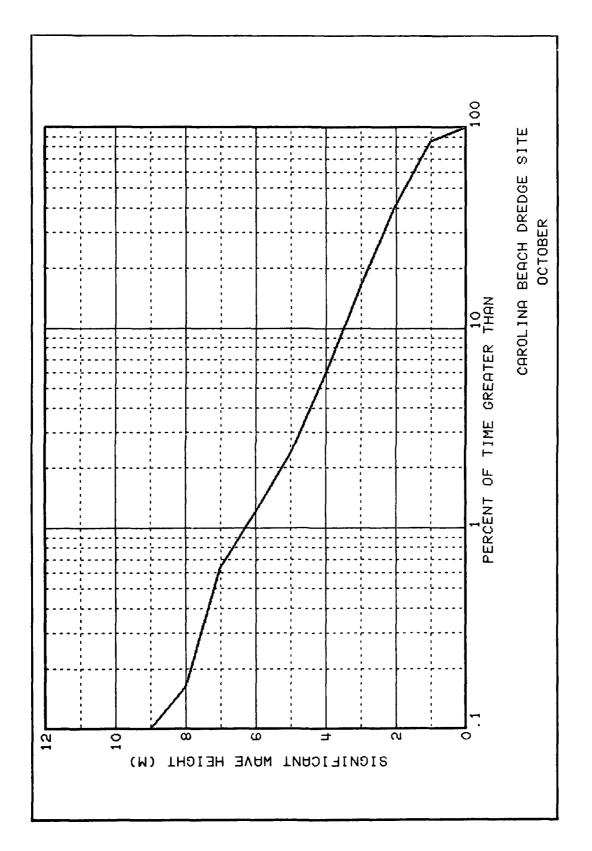
CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR SEPTEMBER CAROLINA BEACH DREDGE SITE

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	20.60	1.13	0.50	0,14	0.18		0.00	0.05	0.17	0,28	23.07
01-02	29.61	11.89	2,76	0.98	0.38	0.20	0.05	0.01	0.15	0.06	46.09
02-03	5,92	7.86	4,54	1.63				0.00	0,03	0.03	20,95
40-E0	0.99	2.53	2.03	1.03				00.00	0.02	0.02	7.27
04-05	0.14	94.0	0.61	0.42			00.00	00.00	0,01	0.03	1.90
05-06	0.04	0.03	0.11	0,08				00.00	0.00	00.00	0.39
06-07	0.00	0.04	0.04	00.00				0.00	00.00	0.00	0.12
07-08	0.00	0.02	0.07	00.00				00.00	0.00	0.00	0.13
08-09	00.00	00.00	0.04	00.00				0.00	00.00	0.00	0.07
01-60	00.00	00.00	0.01	00.00				00.00	00.00	00.00	0.01
TOTAL	57,30	57.30 23.97 10.70	10.70	2.29		0.75		0.05	0.38	0.41	



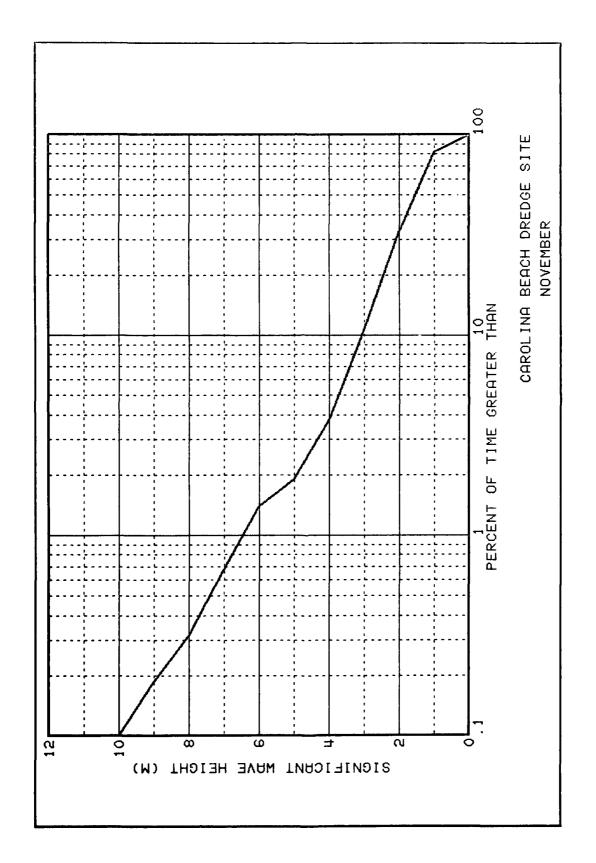
CAROLINA BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	တ ရာ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	12,96	1.08	0.25	01.0	0.04	0.00	0.00	00.00	0.03	0.19	14.64
01-02	28,83	11,04	2.71	1.00	0.30	0.07	00.00	00.00	0.02	0.02	44.02
02-03	9,25	8.05	4.81	16,1	0.56	0,25	00.0	0,03	0.01	00.00	24.97
93-04	2.97	2,69	2.47	1,57	0.59	0.12	0.02	0.01	10.0	00.00	10.44
04-05	0,57	0.61	1.08	0.58	0.30	0,19	0,05	90.0	0,03	00.00	3.58
05-06	0.31	0.18	06.0	0.12	0.11	0.08	0,03	00.00	00.00	00.00	1.15
08-07	0,15	0.14	40.0	0.07	0.01	0.15	00.00	00.00	0.00	00.00	0.58
07-08	90.0	0.15	0.03	0.04	0.02	0.18	0.01	00.00	0.00	00.00	84.0
60-80	00.00	0.04	0.01	0.01	10.0	0.05	60.0	00.00	00.00	00.0	0.14
09-10	00.00	00.00	00.00	0,00	0.00	0.05	0.00	00.00	00.00	00.00	0.02
TOTAL	55,10	23.98	11,70	5.50	P. O.	1,11	0.13	01.0	0.10	0,23	



CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

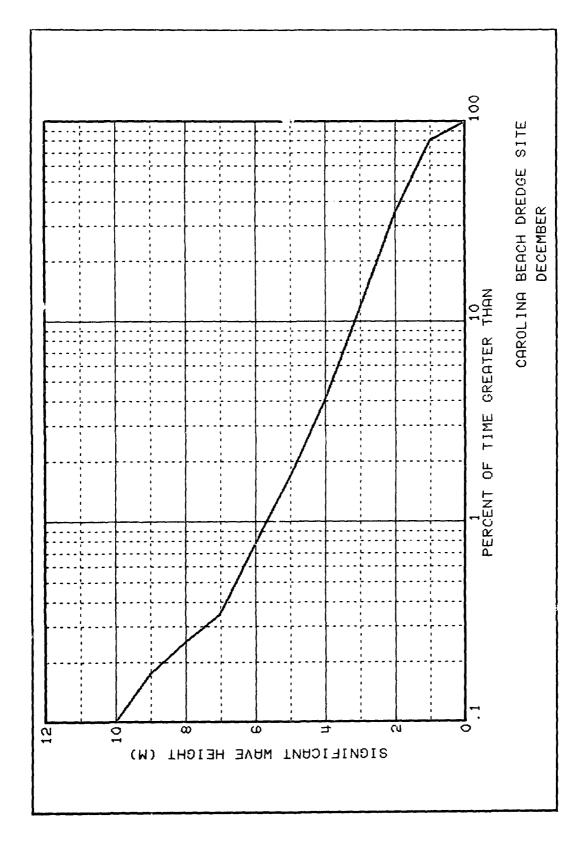
HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-5	6-7	6-8	10-11	12-13	14-15	16-17	61-81	20-21	>21	
10-00	15.72	1.54	0.25	0.22	0.01	00.00	0.04	0.00	0.16	0.29	18,22
01-05	32.29	12,75	3,15	0,70	0.13	0.07	0.00	0.00	0.03	0.08	49.14
02-03	7.50	7.72	4.94		0,39	0.16	0.00	0.00	01.0	0.05	22,09
40-E0	1.60	1.88	1.55	1,26	0.32	0.12	0.08	0.00	0.05	0.00	6.84
04-0S	0.34	0.39	0.31	0.38	0.15	0.14	0.08		40.0		1.84
05-06	0.03	0.08	0,15	0.03	0.07	90.0	0.03	00.00	00.00	0.04	0.50
06-07	0.26	00.00	0.14	0.04	0.05	0,22	0.00		00.00	0.01	0.72
07-08	0.07	0.01	0.05	0,00	00.00	0.18	0.05		0.00	0.00	0.36
60-80	00.00	0.04	0.01	0,00	00.00	0.02	0.05	00.00	00.00	00.00	0.13
01-60	00.00	0.04	00.00	00.00	0.03	0.00	0,05	0.03	0.00	00.00	0.15
>10	00.00	00.00	00.00	0.00	0.02	0.00	00.00	0.01	00.00	00.00	0,03
TOTAL	57.75	24,45	10.54	9.90	1,16	0.97	0,39	0.02	0.39	11 to	



CAROLINA BEACH DREDGE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	6-8 6-8	10-11	12-13	14-15	16-17	61-81	20-21	721	
10-00	17.33	1.05	0.51	0.13	0.01	0,02	00.00	90.0	0.05	0.54	19.70
01-02	29.54	11.72	2.85	1.02	0.30	0.16	0,00	0.00	0.04	0.18	45.82
02-03	7.03	7.81	5,30	1,92	0,42	0.07	0.04	00.0	0.08	0,05	22.73
40-60	1.47	2,11	1,85	1.57	0.54	0.00	0,06	0.00	0.03	0,05	7,71
04-05	0.62	0.56	0,55	0,28		0.07	0.02	00.0	00.00	0,00	2,36
05-06	0.13	0.17	0,25	0.15	0.13	0.07		0.00		0.00	0.90
06-07	0.17	0,05	0.10	0,03		0.05	0.00	00.00	00.00	00.00	64.0
07-08	0.03	0,02	0.04	00.00		00.00	00.00	0.00	00.00	0.00	0.10
08-09	00.00	00.00	0.05	00.0	00.00	00.00	00.00	0.05	00.0	0.00	90.0
01-60	0,04	00.00	0.04	00.00	00.0	00.0	00.00	90.0	00.00	0.00	0,13
>10	0.02		00.0	00.00	00.00	00.00	00.00	0.02	00.00	0.00	ήO.0
TOTAL	56,33	23,47	11,52	5,10	1.70	ti 1 0	0.12	0,19	0.25	9,02	

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AD-A102 376 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/6 8/3 BEACH NOURISHMENT TECHNIQUES. REPORT 4. WAVE CLIMATES FOR SELEC-ETC(U) APR 81 D L DURHAM, L Z HALES, T W RICHARDSON WES-TR-H-76-13-4-APP UNCLASSIFIED NL 2 015

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD
MAYE DIRECTION = 30

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	45-5	6-7	e-8	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	2,35	0.53	0.05	0.02	0,02	00.00		00.00	0.02	0.03	3,03
20-10	4,62	2,13	0.42	0.13		0.01	00.00	00.00	00.00	0.01	7.37
02-03	1.24	1,19	0,91	0.30		0.04	0,00	00.00	00.00	0.00	3.78
40-E0	0.27	0.27	0,46	0.20		0.02	0.01	00.00	00.00	00.00	1.30
04-05	0.02	0.03	0.13	0.08	0,02	0.02	0.01	00.00	10.0	00.00	0.37
02-06	0.02	0.01	PO.0	0.03		10.0	0.01	00.00	00.00	0.00	0.12
06-07	0.02	10.0	0.05	0.01		0.01	00.00	00.00	00.00	0.01	0.10
07-08	00.00	00.0	0.01	0.01		00.00	00.00	0.00	00.00	00.00	0.03
60-80	00.00	00.00	00.00	00.00		00.00	10.0	00.00	00.00	0.00	0.01
01-60	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00	0.00
TOTAL	8,60	4,16	2,04	0.77			0.05	0.01	0.03	0.05	

CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 60

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-5	6-7	6 -8	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	4.54	0.25	0.09	0.03	00.00	00.00	0.01	0.01	0.04	0.09	5.06
01-05	8,45	2.91	0.70	0.20	0.05	0.03	00.00	0.00	0.05		12.40
02-03	2,09	2,44	1.29	0.48	0.12	90.0	0.01	00.00	0.01		6.50
93-04	94.0	0.71	0.71	0.46	0.12	0.04	0.01	00.00	0,01	00.00	2,52
90-40	0,09	0.18	0.26	0.17	0.13	0.03	0.01	00.00	10.0	10.0	0.89
05-06	0,03	0.03	0.08	0.04	0.04	0.01	00.00	00.00	00.00	00.00	0.23
20-90	00.00	0.01	0.01	0.03	0.01	0.01	0.00	00.00	00.00	00.00	0.08
07-08	0.01	0.01	0.01	0.01	0.01	0,02	0.00	0.00	00.00	00.00	0.07
60-80	00.00	00.00	0.01	00.00	00.00	0.01	0.00	00.00	00.00	00.00	0.03
01-60	00.00	0.00	0.00	0.01	0.01	00.00	00.00	00.00	00.00	00.00	0.02
TOTAL	15,65	6.54	3.17	1.42	0,49	0.22	0.04	0.02	0,10	0.15	

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
MAYE DIRECTION = 90

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	& 6-	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	3,75	0,22	91.0	0.04	0.03		00.00	00.00	0.03	0.08	4,32
50-10	5,89	2.04	0.76	0.20	0.07	0.02	0.00	00.00	0.03	0.03	90.6
02-03	1.09	1.40	0,75	0,30	0.11	0.02	00.00	00.00	0.01	10.0	9.69
40-E0	0.20	0.52	0.23	0.19	0.07	0.04	00.00	00.00	00.00	00.00	1.26
04-02	0.03	0,12	0,05	0,04	0.02	0.05	10.0	00.00	00.00	00.00	0.30
90-20	0.05	0.03	0.01	0.01	0.01	0.01	00.00	00.00	0.00	00.00	0.09
06-07	0.01	0.01	0.01	0.01	0.01	0.02	00.0	00.00	0.00	00.00	90.0
07-08	00.00	0.01	00.00	00.00	00.00	0.01	00.00	00.00	00.00	00.00	0.03
60-80	00.00	0.01	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.0	0.01
01-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.01	00.00	00.00	0.01
TOTAL	10.93	4.38	1.97	0.80	16.0	0,15	60.0	0.02	SO.0	0.12	

CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 120

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	ტ ტ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	1.75	0.21	0.05	0.02	0.01	10.0	00.00	00.00	0.01	60.0	2.08
01-05	2,43	1.04	0.24	0.07	0.03	0.02	00.00	00.00	0.00	0.01	3.85
02-03	0.41	0.52	0,25	0.08	0.04	10.0	00.00	00.00	00.00	0.00	1:31
93-04	0.08	0.11	0.08	90.0	0.02	10.0	00.00	00.00	0.00	0.00	96.0
04-02	0.01	10.0	0.02	0.02	00.00	0.00	00.00	00.00	00.00	0.00	0.07
02-06	0.00	0.01	0.01	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.02
20-90	0.01	00.00	0.00	00.0	00.00	0.00	00.00	00.00	0.00	0.00	0.01
07-08	0.01	0.01	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.02
60-80	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
01-60	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0
TOTAL	4.69	1,90	0.65	0.25	01.0	90.0	10.01	0.01	0.01	0.04	

CAROLINA BEACH DREDGE SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD WAYE DIRECTION = 150

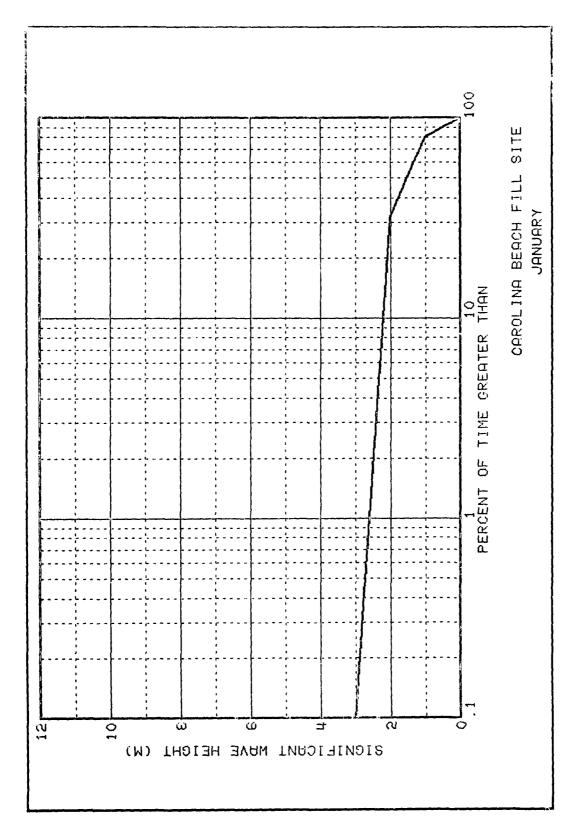
HEIGHT (M)				-	PERIOD	(SEC)					TOTAL
	<5-5	6-7	ტ ტ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	3.30	0.20	0.11	0.02	0.03		0.00	0.00	0.03	0.08	3.77
01-02	4.20	1.35	0,39	0.10	0.05	50.0	0.01	0.01	10.0		6.16
02-03	0.74	0.65	0.37	0.14	0.05	0.03	0.00	0.00	0.00	0.00	1.99
40-60	0,20	0.17	0.12	0.08	0.03	0.01	00.00	0,00	0.00	0.00	0.61
04-05	0.06	0.05	0,02	0.02	0.01	0.01	00.00	00.00	0.00	0.00	0.15
05-06	0.01	0.01	0.01	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.03
06-07	0.04	0.01	0.01	0.00	00.00	0.01	0.00	0.00	0.00	0.00	0.02
07-08	0.01	10.0	00.0	0.00	00.00	0.01	00.00	00.00	0.00	00.00	60,0
60-80	0.00	00.00	0.00	0.00	00.00	00.00	00.00	0.00	00.00	0.00	0.01
01-60	00.00	00.00	00.0	0.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
TOTAL	8,55	2.44	1.02	0.36	0.16	0.0	0,02	50.0	0.05	0.11	

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 180

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	ი- <u></u>	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	4.14	0.19	0,09	0,02	0.01	0.01	0.00	0.00	0.04	0.07	4.56
01-02	5.95	1,66	0,38	0,08	0,03	10.0	0.00	0.00	0.02	0.03	8.13
02-03	1.33	0.86	0.49	0.13	0.03	10.0	00.00	00.0	0.01	0.01	2.87
40-E0	D.34	0.24	0,12	0.10	0.03	0.00	0.00	00.00	0.01	0.00	0.84
04-02	0.08	90.0	0.03	0.04	0.01	0.00	0.00	0.00	00.00	00.00	0.23
05-06	0.02	0.01	0.01	0.01	0.01	0.01	00.00	0.00	00.00	00.00	0.07
06-07	0.02	00.00	00.00	0.00	0.01	0.00	0.00	0.00	00.00	00.00	0.04
07-08	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.02
60-80	00.00	00.00	00.00	0.01	10.0	00.00	00.00	0.00	00.00	00.00	0.02
01-60	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.01
TOTAL	11.35	3.01	1,12	0,40	0.14	0,05	00.00	0.01	0.07	0,12	

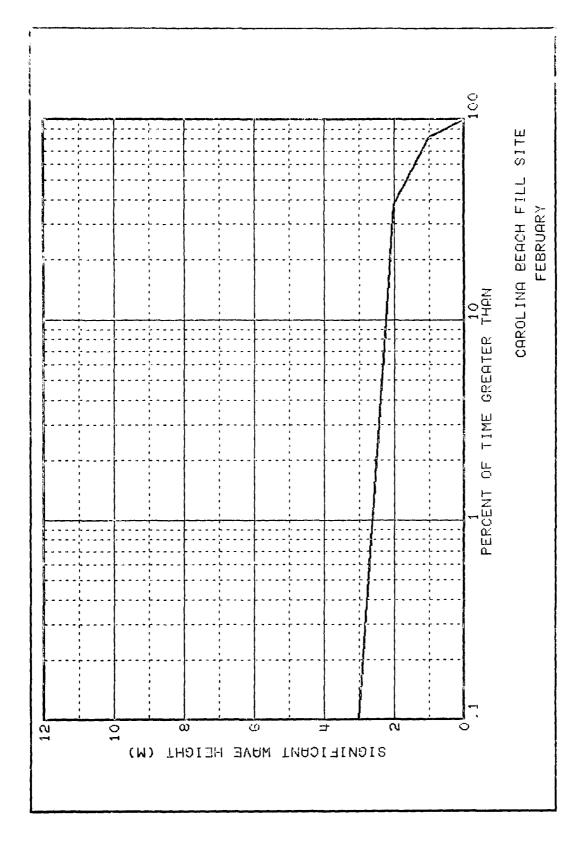
CORULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT RND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	ල- හ	10-11		14-15	16-17	61-81	20-21	>21	
00-01	15,20	2.94	0.78	0.19	90.0	0,00	00.00	0.00	0.11	0,17	19,46
01-05	35,45	8,70	3.05	0.58	0.34	0.07	0.00	00.00	90.0	0.13	46.40
02-03	10.89	8,42	6,50	ତ, ଓ	1.74	0.42	00.0	00.00	0.05	0,31	32.15
h0-60	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0,00
0n-05		00.0	0.00	0.00	00.00	00.0		0.00	0.00	0,00	00.00
05-06		00.00	0.00	00.00	00.00	00.0	00.00	0,00	00.00	0,00	00.00
20-90		00.00	00.00	0.00	00.00	00.0	00.00	00.00	0,00	00.00	0,00
07-08	00.00	00.00	00.0	0.00	00.00	0.00	00.0	00.0	00.00	υ· υ	υ, ου
60-80	00.00	00.00	00.00	00.0	0.00	ن، ن	ن• ٥٥	00.0	0.00	ن د	00 J
09-10	0,00	00.00	00.00	ر ؛ در	0,00	0,00	ن درن	υ , ΩΩ	69,0	6,1,0	Ç E
TOTRL	61,53	20.05	10,03	£ €	2,11	0.49	ن بي	υ) 'ψ	2816	0,03	



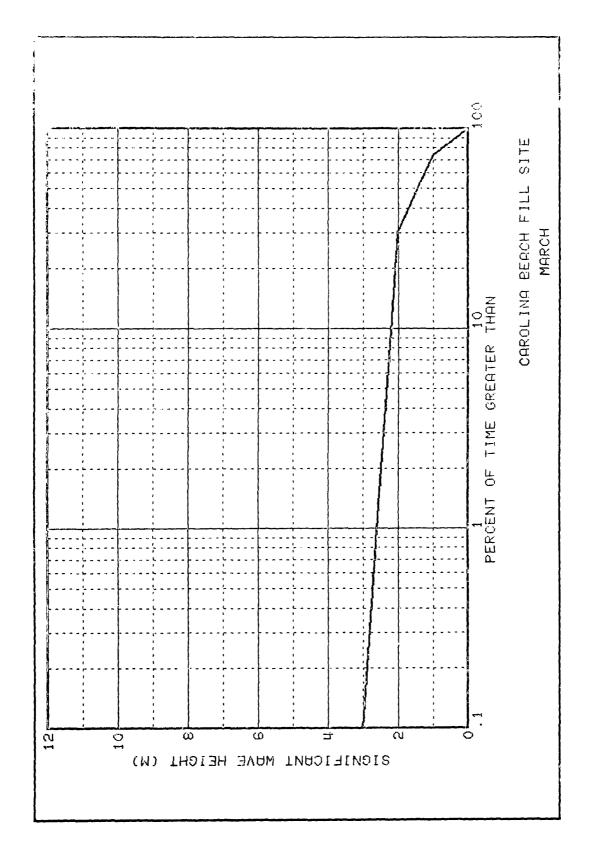
CHROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT FND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-2	6-7	တ တ	10-11	12-13	14-15	16-17	18-19	20-21) 21	
10-00	13,39	4.02	0.83	0.14	0.04	0.04	00.0	00.00	0,15	0.13	18,76
01-02	28,38	9.74	3,51	1,22	0,35	0.07	00.00	00.00	0.04	0,12	43,42
02-03	10.55	10,00	9,43	4,59	2.21	0.63	0.31	00.00	00.00	00.0	37.79
40-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
04-05	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.0	00.0
02-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00	00.0
06-07	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.00
07-08	00.00	0.00	00.00	υ, νο	00.00	00.0	00.00	00.0	٥٠٠٥	0,0	0, n
08-08	0.00	00.00		0,00	0,00	0,00	0,00	0,00	0,00	00.0	υ·υ
03-10	00.00	00.0			0,00		0010	ςυ'υ Ο	င် ပ	ري د	
TOTAL	60 60 60	52,32 23,77 13,73 5,85	13,70	15 15	03.5		6	Ou to	0,10	ن د د	



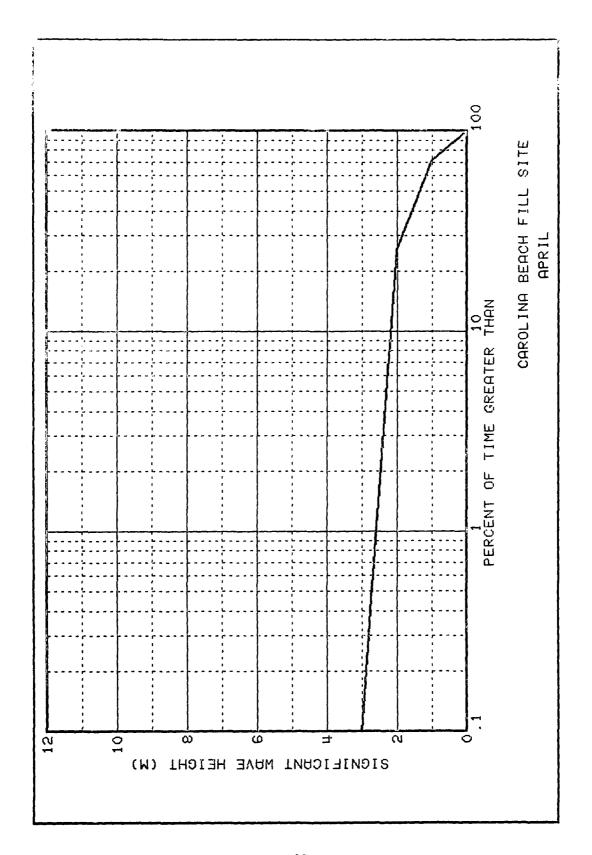
CAROLINA BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)				_	PERIOD (SEC)	(SEC)					TOTAL
	<5- 5	6-7	න භ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	21,33	4,02	0,58	0,23	0.05	00.0	00,0	0.02	0.09	0,29	26,62
01-02	29,56	9.40	3,13	0.53	0,22	0.01	0.01	0.04	0.04	ი, ი	43.03
02-03	က က	S.92	7,43	ର, ଘଥ	0,85	0.50	0.14	0.15	50.0	0.07	30,85
03-04	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0,00	0.00	0.00	0.00
04-05		00.0		00.00	00.00	00.00	00.00	00.00		00.00	0.00
05-06		00.00		00.00	00.00	0,00		00.00	0.00	0.00	00.00
08-07	00.00	00.00	00.00	00.0	00.00	00.0	00.0	00.00	00.00	00.00	0.00
00-00	00.0	00.00	0,00	0010	00.0	00.00		0.00	0,00	ου το Ο	ů°ů°
60-80	00.00	00.00	0,00	69.60	0.00	00,0	00.00	ن دن	υ λ *ψ	0.00	ο, <mark>ο</mark>
09-10	0.00	00.00	00.0	0,00	00.00	ψ 0 *υ	ن ن	ψ ₀ *υ	0,00	0010	SJ.
TOTOL	59,75	85.59 85.59	11,15	11.13	1.12	0.51	0,155	00°0	0.15	04.40	



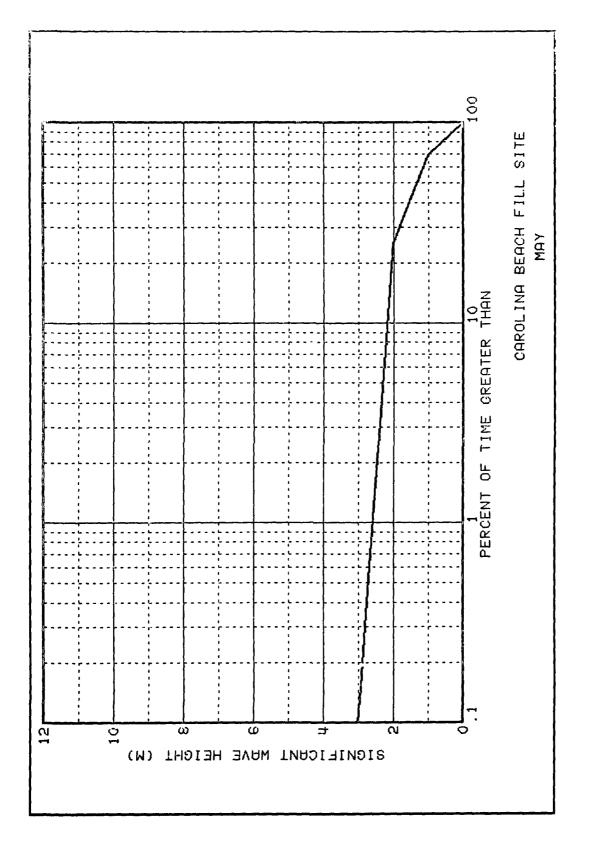
CHROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	8-9	10-11	12-13	~	16-17	18-19	20-21	>21	
00-01	22,94	4.10	0.97	0.29	0.11	00.00	00.00	00.00	0.15	0,42	28.98
01-02	32,66	8.94	2,46	0.65	0.19	90.0	0.04	00.00	0.13	0.20	45.24
02-03	8.22	8,58	4.89	P. 24		0.37	0.21	0.10	0.15	0.05	25.67
40-e0	00.00	0.00	0.00	0.00		0.00	00.00	0.00	00.00	00.0	00.00
04~02	00.00	0.00	00.00	0.00		00.0	00.0	0.00	0.00	0.00	00.00
05-06	0.00	00.00	0.00	0,00	00.00	0.00	00.00	00.00	0.00	0.00	00.0
20-90	00.00	00.00	0.00	0.00		00.00	00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.0	0.00		ે.	0.00	0.00	00.0	0.00	0°0
08-03	00.00	00.00	00.00	υυ • υ		0.00	0.0	0,0	ن ن	0.00	ç.
09-10	0.00		00.0	00.0		00.0	00.0	0,00	00.0	ù°0	n, Ch
T0TPL	69. 02	ťu	6 6 6	0110		0,40	0.23	0.10	0,45	0.03	



CHROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	හ ල	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	24,51	4,83	0.94	0.20	0.16	0.04	00.00	0.02	0.04	0,2¥	30,98
01~05	31,99	8,63	2.57	0,38	0.19	0.05	0.00		90.0	0.12	44,02
02-03	7.24	9,54	5,38	2,32	0.52	0.64	0.64 0.04		0.11	0.11	25.02
h0-e0	00.00	00,00	00.00	00.00	00.00	00.00	0.00		0.00	00.00	
04-02	00.00	00.00	00.00	00.00	00.00	00.00	0.00		00.00	0.00	0.0
02-06	00.00	00.00	00.00	00.00	00.00	00.0	0.00		00.00	0.00	
20-90	00.00	00.00	0.00	00.00	00.00	0,00	00.00		00.00	00.00	
07-08	00.00	00.00	0,00	o.0	00.00	00.00	00.00	00.00	0.00	0.00	
60-90	0,00	00.00	0.00	00.00	00.0	0,00	ပ် ပ		0,00	o.0	
01-60	0.00		00.00	00.00	00.00		0.00		ن• در	ن'ن <u>ن</u>	ບໍ່ວ່
TOTOL	59,75	69.75 22.10 8.80	67 63	5	0.07		ت ت			6,117	

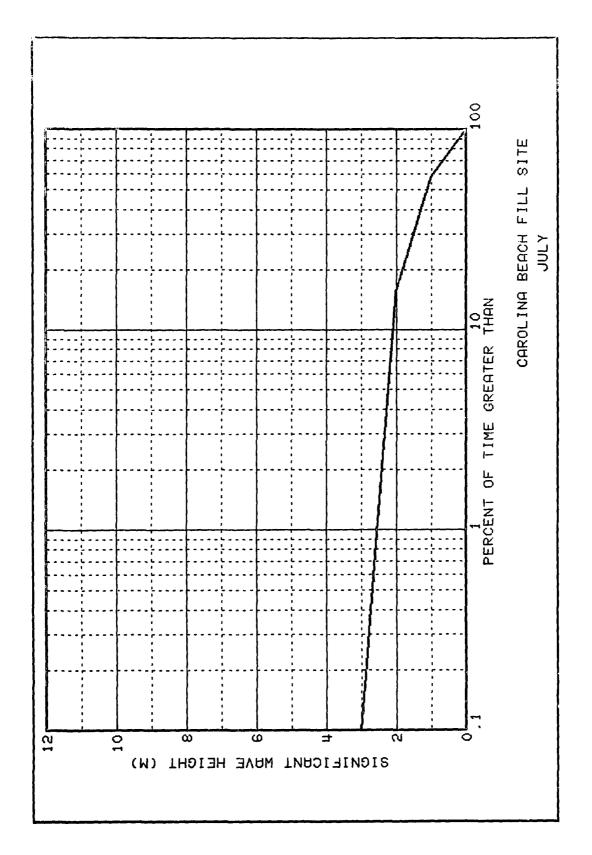


CAROLINA BEACH FILL SITE CUMULATIVE SEA / SMELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JUNE

HETCH)					PERTON	(SEC.)					TOTAL
	45-5	6-7	හ භ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	29.35	4.86	0.65	0.20	0.10	0.0	0.00	0.00	0.23	0.65	36,04
91-05	29.88	8.62	2,41	0.46	0.18	0.04	00.00	0.01	0.11	0.30	42,01
02-03	5,25	8.07	4,98	2,22	0.74	0.47	0.04	0.04	0.08	0.07	
40-E0	00.0	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
04-05	00.00	00.00	0.00	00.00	00.00	00.0	0.00	00.00	00.00	0,00	
9008	00.00	0.00	00.00	00.00	00.00	0.00	0.00	0.00	00.00	0.00	
06-07	00.00	0.00	0.00	0.00	00.00	00.00	0.00	0.00	00.00	0,00	
07-08	00.00	00.00	00.00	00.0	0.00	00.00	0.00	0.00	00.00	0.00	
60-80	00.00	0.00	0.00	00.00	00.00	00.0	00.00	00.00	00.0	0,00	
01-60	0.00	0.00	0.00	00.00	00.00	0,00	00.00	0.00	00.0	0.00	
TOTAL	84.48	21.55	30°0	က် လ	1.02	0,51	O, OU	0,045	G, 12	1.03	

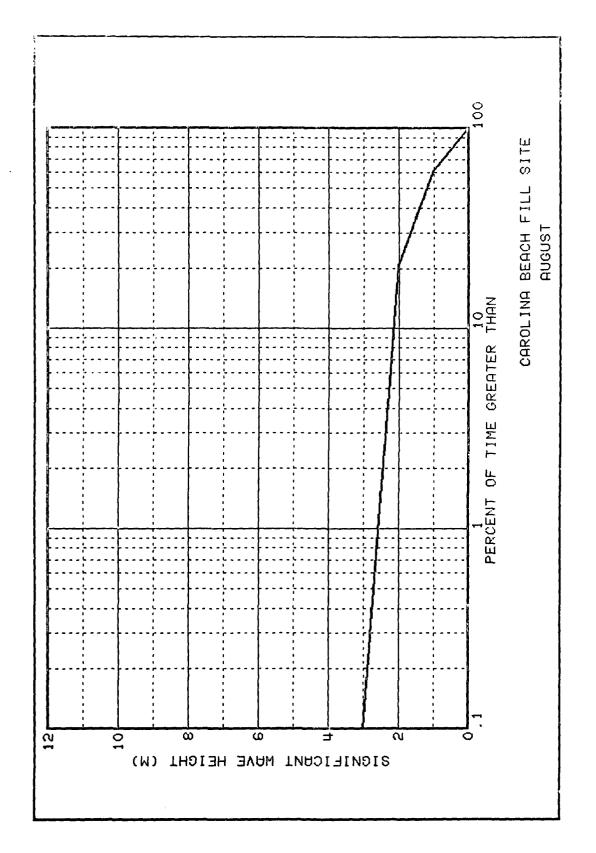
CAROLINA BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT RND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	2-9	& 6-	10-11	12-13	14-15	16-17	18-19	20-21	721	
10-00	33,32	4,90	1.81	0.31	0.27	0.04	0.02	0.00	94.0	0.71	41,90
01-02	30,55	8,24	2,42	0.37	0.18	90.0	0,05		0.24	0.37	42,48
02-03	3.37	7.21	2,49	1.29	0.53	0.25	00.00	90.0	0.15	0,25	15.62
40-60	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.00
04-05	00.0	00.00	00.00	0,00	00.00	00.00	00.00	00.00	0.00	0.00	00.00
02-06	00,00	0.00	00.00	0,00	00.00	00.00	00.0	00.00	0.00	00.00	0.00
06-07	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
07-08	0.00	00.0	00.00	0,0	00.00	00.00	00.00	00.00	00.0	0.00	0.00
60-80	00.00	00.00	00.0	00.0	00.00	0.00	υ , 00	0,00	0.00	0,0	o.00
03-10	0.00	0.00	00.0	υ. υ.	00.00	00.00	0,00	0,00	00'0	0,00	0°0
TOTAL	67,24	30,05	6.72	1.93		0,35	0.12	O.06	0,07	1.88	



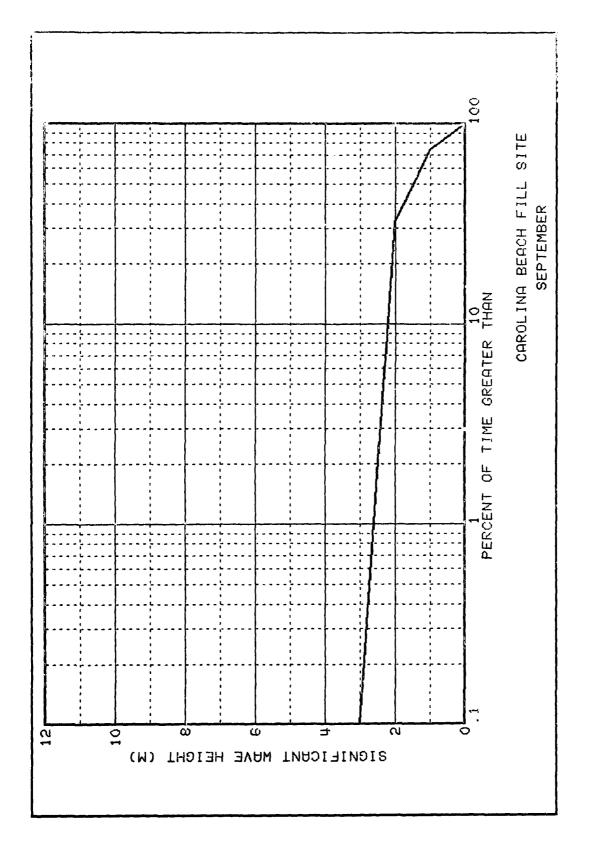
CAROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAVE HEIGHT AND PERIOD FOR RUGUST

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-2	2-9	6-8	10-11	12-13		16-17	18-19	20-21	721	
10-00	32,06	4.25	1.08	0.29	0.11		90.0	0.00	0.30	0.34	38.60
01-05	28.73		2.57	0,63	0.09	0.16	0,03	0.02	0.15	0.20	40.58
02-03	5,03		4.21	2,55	0.67		0.00	0.02	0.02	0.16	20.81
40-E0	00.00	0.00	00.00	00.00	0.00		00.00	00.00	0.00	0.00	0.00
04-05	00.00	0.00	0.00	0.00	00.00		00.00	00.00	00.00	0.00	0.00
02-06	00.00	0.00	0.00	00.0	00.00		0.00	00.00	0.00	0.00	0.00
06-07	00.00	0,00	00.00	0.00	00.00		0.00	00.00	0.00	0.00	0.00
07-08	00.00	0.00	0.00	00.00	00.00		0.00	00.00	0.00	0,00	0.00
60-80	00.00	00.00	0.00	00.0	00.00		0.00	00.00	00.00	00.00	0.00
01-60	0.00	00.00	0.00	0.00	00.00		00°0	0.00	00.0	00.00	00.00
TOTAL	55.21	19.93	7.86	9.17	1,06		ۍ. م.	0.05	9340	0.00	



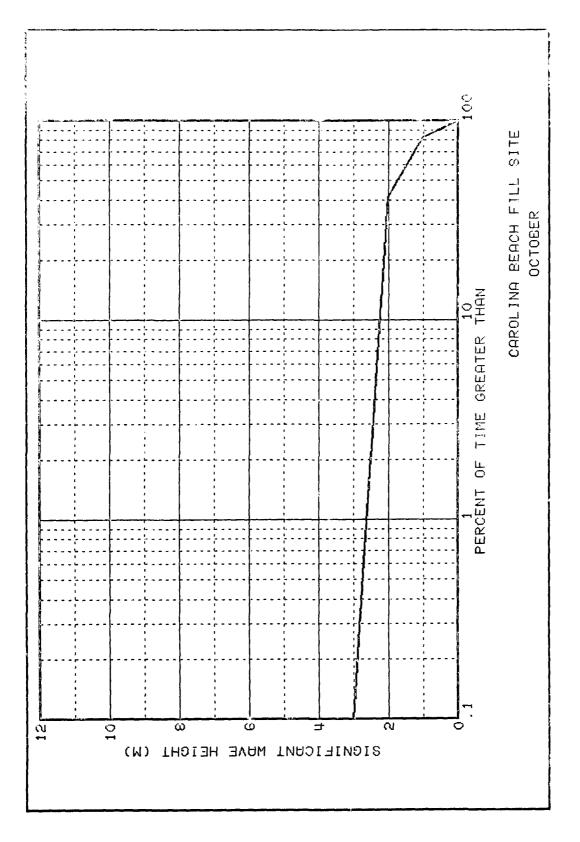
CEROLINA BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR SEPTEMBER

					0.10	(10101
HELGRI (R)	\$-52 \$-52	R-7	6. 6.	10-10-1	12-13	14-15	16-17	91-81	20-02 14-04	751	5
00-01	22.02	. 5 82.5		0,0	0.16	0,0	00,0	60.0		0.20	25.67
01-02	28.68	6 88		ර. දිසි	0.21	0.0	0.0	0.03		0.13	42.10
02-03	6.60	11.79	7.89	დ გე	1.57	0.64	0.16	0.0	0.10	0,08	32.21
40-E0	0.00	00.0	00.00	0.00	00.00	00.00	00.00	0,00	00.0	0,00	00.00
0.4-05	0.00	00.00	00.00	0.00	0,00	0.00	00.00	0.00	00.00	0.00	00.00
05-06	00.00	00.00	0.00	0.00	0.00	0.00	00.00	0.0	00.00	0,00	00.00
06-07	0.00	00.00	00.00	0.00	00.0	0.00	00.00	00.0	00.00	0.00	0.00
07-08	00.00	00.00	0.00	0,00	00.00	00,00	00.00	0,00	00.00	0.00	00.0
60-60	00.00	0.00	0.00	00.0	00.0	0.00	00.00	00.0	0,00	ري. م	υ·υ
03-10	0.00	0.00	00.00	Č,	00.00	00.0	ت ن	υ, ο <u>ο</u>	00.00		ψύ*0
TOTRL	57,30	29.97	10,70	03.1	1.9	ن کند	0.19	90 0	<u>ဂ</u> ္ဂ		



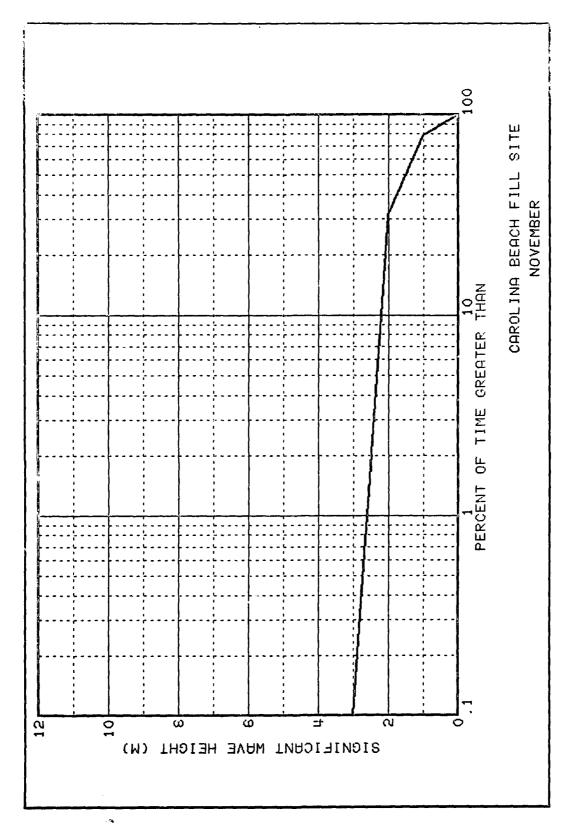
CHROLING BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	2-9	හ - හ	10-11	12-13	14-15	16-17	18-19	20-21	721	
00-0j	14.22	2,03	0.37	0.07	0.03	0.00	0.00	00.00	0.05	0.20	16.94
50-10	28.25	10.04	2,39	0.68	30.0	0.03	00.00	00.00	9,02	0.0	41.53
02-03	12,63	11.90	8,95	4.75	1.93	1.08	0.13	01.0	90.0	0.00	41,58
10-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
04-05	0.00	00.00	00.00	00.00	00.00	00.0		00.0	00.00	0.00	0.00
05-06	00.00		00.00	00.0	00.00	00.00	00.00		00.00		00.00
06-07	00.00		00.00	00.00	00.00	0.00	00.00		00.00		0.00
07-08	0.00	00.00	00.00	0,00	0.00		00.0		00.0		0,00
08-03	00.00	0.00	00.00	00.0	0.00		00.00	0,00	0,00	0.00	ن ئى
03-10	00.00	0.00	00.00		0,00	ن دن		0010	٥,٠٥	ن'ن	0.00
TOTAL	55,10	20,08	11.70	5	20.0		61.0	01.0	ن د د د	0,83	



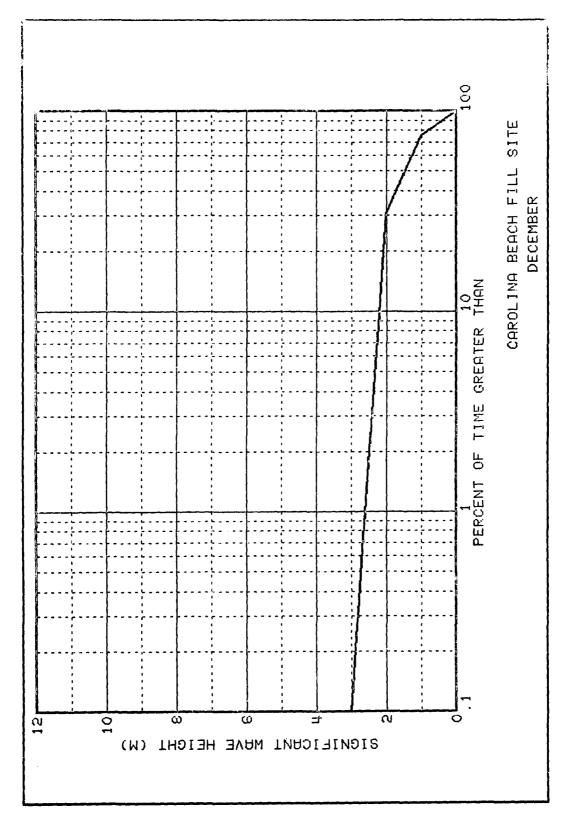
COMULATIVE SER / SWELL FREGUENCIES OF WAYE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTPL
	45-5	6-7	၈ - ဗ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	17.52	3.12	64.0	0.26	00.00	0.00	0.04	00.00	0.13	0.26	21,76
01-05	31,19	11.22	3,43	0.68	0.07	0.01	0.01	0.00	90.0	0.12	46.79
02-03	9,05	10,11	6.68	2.97	1.09		0,34	0.05	0.19	0.05	31.48
03-04	00.00		00.00		00.00			00.00	0.00	00.00	0.00
04-02	00.00	0.00	00.00	00.00	00.00	00.0	0.00	00.00	00.00	00.00	0.00
02-06	00.00		00.00	00.00		00.00	00.0	0.00	0.00	0.00	0.00
20-90	00.00	00.00	00.00	0,00		00.0		00.00		0,00	0.00
07-08	00.00	00.00	00.0	0.00	00.00	0.00	0,00	0.00	00.00	0.00	0.00
60-80	00.00	00.00	00.00	0,00	0.00	0.00	00.0	0,00	0,00	0.00	ပ္) (ပ
03-10	0.00	00.00	00.00	(c) * c	0.00	00.0	0.00	0,00	υ υ 'υ	0,00	<u>ن</u> . ين
TOTAL	57,75	24,45	10.59	ତ ଓ	1,16	0.07	0310	0,03	ଓଟ୍ଟେଧ	0	



CAROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	ල ල	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	19,48	3,62	0.31	0.13	0.05	00.00	0.00	0.04	0.07	0.47	24.77
01-05	28,63	10,25	3,79	1.24	0.24	01.0	00.0	0.0 3	0.05	0.26	44,58
02-03	8.27	9.61	6.81	9.74	1,41	0.34	0.12	0.13	0.13	0.0	30,64
40-E0	0.00	00.00	00.00	0.00		00.00	00.0	0.00	00.00	0.00	00.0
04-05	00.00	00.00	00.00	00.00	0.00	00.0	00.00	00.0	00.00	0.00	0.00
02-06	00.00	00.00	00.00	00.00			00.00	00.0	00.00	0.00	00.00
06-07	00.00	00.00	00.00	00.00	00.00		00.0	00.00	00.0	0.00	0,00
07-08	00.00	00.00	0,00	00.00	00.00		00,0	00.00	0.00	0.00	0,00
60-80-	00.00	00.00	00.00	טי'ט	00.00		0.00	00.0	ن، نن	c.	() · ()
03-10	00.00	00.0	0,00	0,00	ύντο		ς) τ	ט טייט	ن در	ڊ ڏ	
TOTRL	55,89	23,47	11,52	ហ	1.70		5.15	C.	ر. ان	· ;	



CAROLINA BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD AND SERIOR = 30

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	හ ව	11-01	12-13	14-15	16-17	18-19	20-21	>21	
10-00	0.00	00.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00	0.00	0.00
01-02	00.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	00.00	0.00	0,00
02-03	00.00	00.00	0.00	0.00	00.00	0.00		0.00	00.00	00.0	
to-50	00.00	00.00	0.00	00.00	00,0	0.00	00.00	0.00	00.00	0.00	00.00
04-05	00.00	00.00	0.00		0.00	00.00	0,00	0.00	00.00	0.00	00.0
90-50	00.00	00.0	00.00	0.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00
08-07	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	
8008	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.0	0,00
60-80	00.00	00.0	00.00	0,00	છ ં 0	_	0010	0,00	00,0	0.00	
09-10	00.0	00.0	00.00	ري ع دي	ن "رن	$\tilde{v}_* \tilde{v}_0$	0010	0,00	<u>ΰ</u> ΰ'υ	0.00	$v_{i,i,0}$
TOTAL	0.00	00.00	00.00	υὐ′υ	00,0	ψυ * υ	0.00	0.00	ن٠رين	0010	

CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 60

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-5	6-7	၈- -	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	7,39	08.0	00.00	00.00	00.00	0.00	0.00	0.00	0.02	0.09	8,24
01-02	12.98	2,28	0.00	00.00	00.00	00.00	0,00	00.00	00.00	0.01	15.26
02-03	3,83	1.08	00.00	00.0	0.00	00.00	00.00	0.00	0.01	10.0	4.99
40-E0	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00
50-40	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	00.00	0.00
05-06	00.00	00.00	0.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00
06-07	00.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	00.0
07-08	00.00	00.0	00.0	0.00	00.00	00.00	0.00	00.00	00.00	0.00	00.0
60-60	00.00	0.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0.00
00-10	00.00		00.00		00.00	00.00	00.0	00.00	00'0	0.00	00.0
נינטר	24,25	1,15	00.00	00,00	0.00	0.00	00.0	00.00	e0.0	30.0	

The state of the s

CRROLINA BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MAYE DIRECTION = 80

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-5	6-7	၈	10-11	12-13	14-15	16-17	18-19	20-21	721	
10-00	3,93	0.44	0.29	0.07	0,03		0.01	0.00	90.0	0.15	66.4
20-10	5.78	4,30	1.74	0.36	0.08	0.03	0,01	0.01	0.05	0.08	12.44
02-03	1.28	6.13	5,14	2,56	0.26	hia*O	0.10	0.04	90.0	0.04	16.81
93-04	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
04-02	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0,00	0.00
02-06	0.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	0.00	0.00	0.00
06-07	00.00	00.0	00.00	0.00	00.00	۵۰°۵	00.0	00.00	00.00	0.00	00.00
07-08	0.00	00.00	0.00	00.00	00.00	00.00	0,00	0,00	00.00	00.00	0.00
08-09	00.00	0.00	00.00	02.0	00.00	00.00	0,00	00.0	0, 00 0, 00	0,00	ن. ري
09-10	00.00	00.00	0,00	0,00	00.00	00.00	ن بن	U) U	0.00	ω'n	ن درن
TOTAL	10,93	10.02	7.18	ි ස්	1,00	0.07	0.10	ದಿ ೧೮	6, 57	0.07	

CAROLINA BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAVE HEIGHT AND PERIOD MAVE DIRECTION = 1.20

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	တ တ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	4.86	0.35	0.08	0.01	0.02	00.00	00.00		0.02	90.0	5.41
01-02	6,34	1.84	0.37	0.08	0.05	0.02	0.00	00.00	0.02	0.05	8,77
02-03	2,03	2.15	1.22	0,52	02.0	0.13	0.02		0.02	ф°0	6,35
1,0-60	00.00	00.0	00.00	00.00	00.00	00.00	00.00		0.00	0.00	00.00
04-05	00.00	00.00	0,00	00.00	00.00	0.00	0.00		00.00	00.00	00.00
90-20	00.00	0.00	0.00	00.00	0.00	0.00	00.00		00.00	0.00	00.00
06-07	00.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00	00.00	0.00	00.00
07-08	00.00	0.00	0.00	00.00	00.00	00.00	00.00		00.0	0.00	00.0
60-60	00.00	0.00	00.00	0.00	00.0	0,00	0,00		00.00	ن. د.	0.00
00-10	00.00	00.00	00°°	00.00	00.00	00.00	00.00		00.00	0.00	0°°0
ַבְּטְלָהָיֵ	10.21	ते. च	1,33	0,01	0,00	0.15	ο, 0 9		90.0	0.15	

COROLING BEACH FILL SITE CUMULATIVE SEG / SHELL FREQUENCIES OF WAYE HEIGHT FIND PERIOD MINE DIRECTION = 150

HEIGHT (M)					PERI OD	(SEC)					TOTAL
	<5-5	2-9	න භ	10-11	12-13	S1-h1	16-17	18-19	20-21	>21	
00-01	5.96	2,05	0,43	0.11	0.0	50.0	00.00	0.00	0,06	0.10	8,77
01-02	5,09	0.92	0,63	67.0	0.06	0.01	00.00	00.00	0,02	0.05	6.83
05-03	0,80	0.04	0.05	90,0	0.04		00.00	00.00	00.0		1.01
t,o-eo	00.00	0.00	0.00	00.00	00.00		00.00	00.00	0,00		0,0
04-05	00.0	0.00	00.00	00.0	00.00		00.0	00.0	00.00		00.00
05-06	00.00	00.00	00.00	0,00	00.00		00.0	00°0	00.0		0,00
06-07	0.00	0,00	00.0	0.00	00.00		00.0	0,00	00'0		0,00
90-00	0,00	0,00	00.00	CO,C	00.0		0,00	00.00	00.0		υ·υ
C6-60		0.00	00.00	ξε. (δ.)			0,00	0.00	ن'نن	υ, ου ο	<u>ئ</u> ئ
¢0~1¢	Ço"e	00.0			ني ال		ري. ن-دي	() t	C U*2		J. C
10101	\$75 6.0 940 940	6	(3.1)	: ; :: ;		0010 8010 4110 0310 8111 1018 2011	ÇJ.Ç	E E	: : :		

CRROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
MAYE PIRECTION = 180

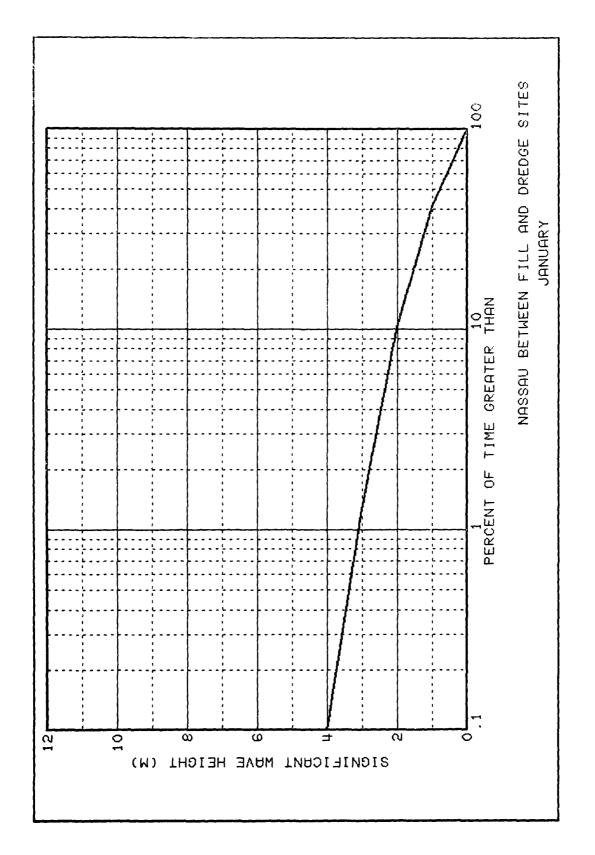
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-2	6-7	၈- မ	10-11	12-13	14-15	16-17	18-19	20-21	>21	
10-00	00.00	00.00	00.00	00.00	00.00	00.00	00,00	00.00	0.00	00.00	0.00
50-10	00.00	00.00	00.00	00.00	00.00		00.00	00.00	0.00	0.00	0.00
02-03	00.00	00.00	00.00	00.00	00.00		00.00	00.00	0.00	0.00	0.00
40-60	00.00	00.00	00.00	00.00	00.00		0.00	00.00	00.00	0.00	0.0
04-0S	00.00	00.00	0.00	00.00	0.00		00.00	00.00	0.00	00.00	0.00
05-06	00.00	00.00	0.00	00.00	00.00		00.00	00.00	00.00	0.00	0.00
05-07	00.0	00.00	0.00	00.00	00.00		00.00	00.00	0.00	0.00	0.00
07-08	00.0	00.00	00.00	00.00	00.00		00.00	00.00	00.00	0.00	0.00
60-80	00.00	00.0	0.00	00.00	00.00		00.00	00.00	00.0	0.00	0,00
00-10	0.00	0,00	00.0	00.00	00.0	00.00	0.00	00.00	00.0	0°0	0.00
10701	00.00	0,00	00.0	0,00	0.00		0,00	00.0	00.00	o, co	

APPENDIX E: AVERAGE WAVE CLIMATE AT NASSAU COUNTY, FLA.

- 1. Appendix E contains the following information for the Nassau County, Fla., project site:
 - a. Tabulations of monthly percent occurrence of wave-height/ period combinations.
 - <u>b</u>. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

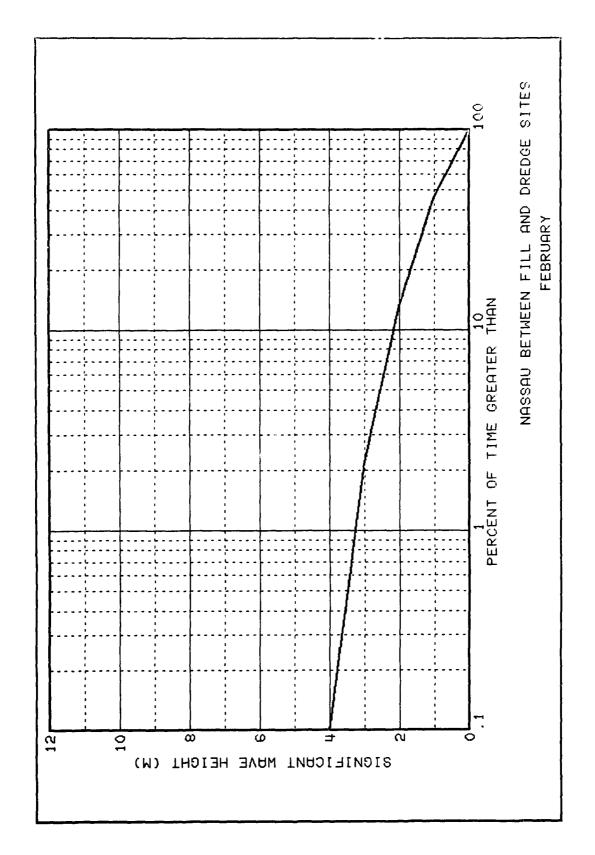
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	91-41	16-18	18-20	20-22	>22	
10-00	9h*6h	10.22	3.08	0.94	0.11	0.32	0.30	0.00	0.09	0.29	58.85
01-02	19.07	7,14	2,41	1.05		0.29	00,00	00.00	10.0	0.21	30.87
02-03	6.27	1.69	0,43	0.39	0.17	0,08	00.00	0.00	0.00	0.00	9.04
03-0H		0.17		00.00	0.13	0.10	00.00	00.00	0.00	0.00	1.28
04-05	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00	00.00	00.00
90-50	00.00	00.00	0.00	0.00	0,00	00.00	0.00	00.00	00.00	0.00	00.0
06-07	0.00		00.00		0.00	00.00	00.00		00.00		0.00
07-08	00.00		00.00	0.00		00.00	00.00		0,00		0,00
08-09	0.00		00.00	00.00		00.00	00.00		00.00	0.00	0010
09-10	00.00		00.00	0.00	00.00	00.00	00.00		0,00	υὐ•ύ	ებ* ი
TOTAL	59.63	19,22	5,93	e, 9	1,10		0.80		0.10	03°0	



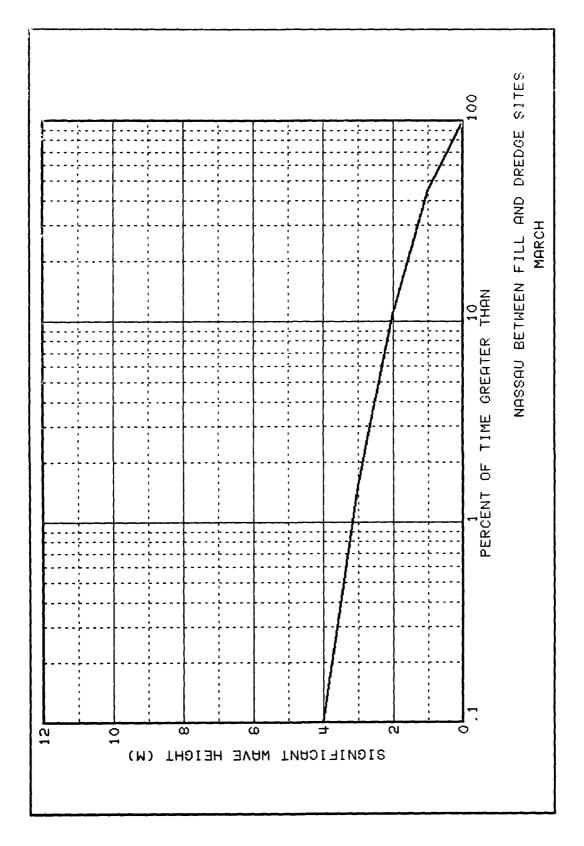
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	37.60	9.07	4.74	1.08	0.57	0.07	0.13	00.00	0.00	0,50	53.76
01-02	17.65	8,59	3,91	1.53	0.89	54,0	00.00	00.00	00.00	0.03	33,03
02-03	6.79	2,64	0.81	0.47	00.00	0.20	00.00	0.11	00.00	00.00	11,02
03-0H	1,53	0.21	0.07	0.10	0.13	0.10	00.00	0,02	00.00	0.00	2.17
04-05	00.00	00.00	00.0		00.0	00.00	00,0	00.00	00.00	00.00	00.00
90-50	00.00		00.00		00.00	00.00	00.00	00.00	00.00	00.0	00.00
06-07	0.00	00.0	00.00	00.00	00.00		00.00	00.00	00.00	0.00	0.00
07-08	00.00	00.00	00.00	0,00	00.0		00.0	00.00	00.00	00.00	00.00
60-80	00.00	00.00	00.0	00.00	00.0		00.00	00.00	00.00	00.00	00.0
03-10	00.00	00.0	00.0	00.00	0.00	00.0	0,00	00.00	0.00	00.00	00,0
TOTAL	69.57	20.53	0.53	3,18	1,53		0.13	0.13	00.0	0.53	



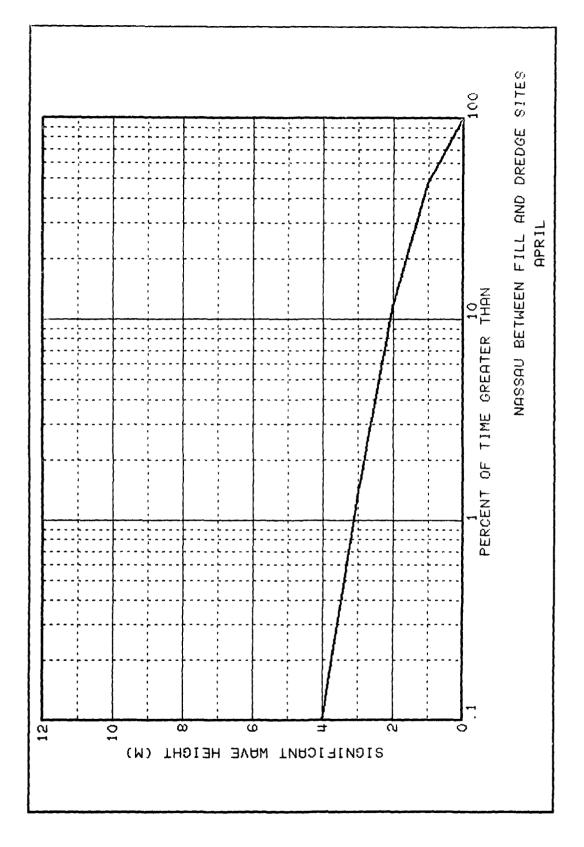
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	42,69	6.92	3.21	0.89	0.64	00.00	01.0	00.00	0.19	0.87	55.50
01-02	23.14	7.31	35.5	0.75	0.05	00.00	0.00	00.00	0.01	0.02	33,55
05- 03	7.97	0.77	0,42	0.17	00.00	0.09	00.00	00.00	0.00	00.00	9.42
#0-E0	1.13	0.17	0.05	0.07	00.0	0.10	00.00	00.00	00.00	0.00	1,53
04-05	00.00	00.00	00.00	00.0	00.00		00.00	00.00	00.00	00.00	0.00
05-06	00.00	00.00	00.00	00.00	00.00		00.0	00.00	0.00	00.00	00.0
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00
07-08	0.00	00.00	00.0	00.0	00.00	00.00	00.0	0.00	0.00	0.00	0.00
60-80	00.00	00.0	00.00	00.00	00.0	0.00	00.00	0.00	٥٠. ٥	0°, م	0.00
03-10	00.0	0.00	0,00	0.00	00.00	0.00	ن د ن	00.0	00.0	0,00	uù u
TOTAL	74.92	15.16	5.93	1,00	0.00	0.20	0.10	00.0	0710	0,0	



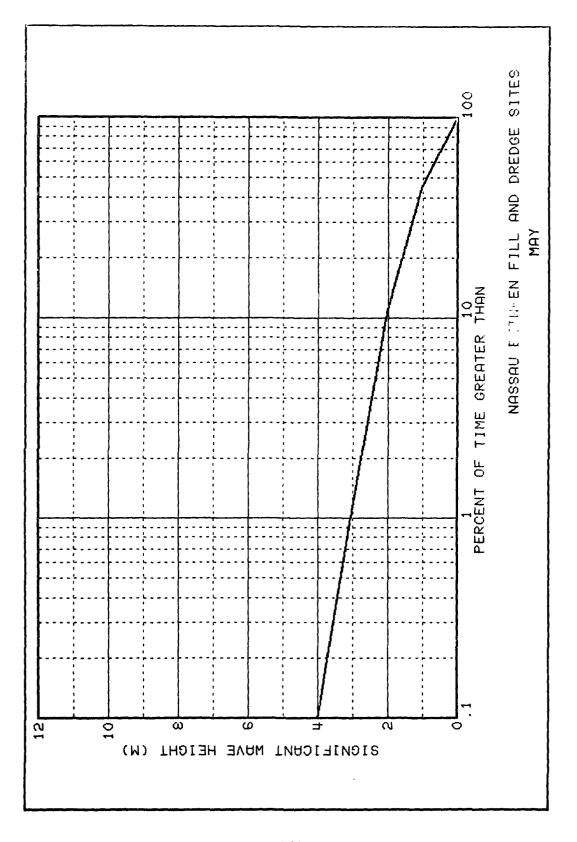
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×22	
10-00	38.77	8,79	2.27	0.75	0.13	0,09	0.01	0.09	0,35	1.02	52.27
50-10	26.20	8.77	1.74	0.70	0.33	00.00	0.09	0.00	0.12	0.20	96.14
02-03	3.64	0.92	0.24	0.35		00.0	00.00	00.00	00.00	00.00	10,26
40-60	1.02	0.09	0.15	0.07	00.00	00.00		00.00	00.00	00.00	
04-05	00.00		00.00		00.00	00.00		00.00	00.00	00.00	0.00
90-20	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	
06-07	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00		00.00	
07-08	00.00	00.00	0.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00	0.00
60-80	00.00	00.00	00.00	00.00	0,00	0.00	0.00	00.00	00.00	00.00	60 1 0
01-60	00.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	0.00	00.00	0,00
TOTAL	74,62	16.57	Ch. 4	1.87	0.56	0,09	0,0	0.09	211.0	1,22	



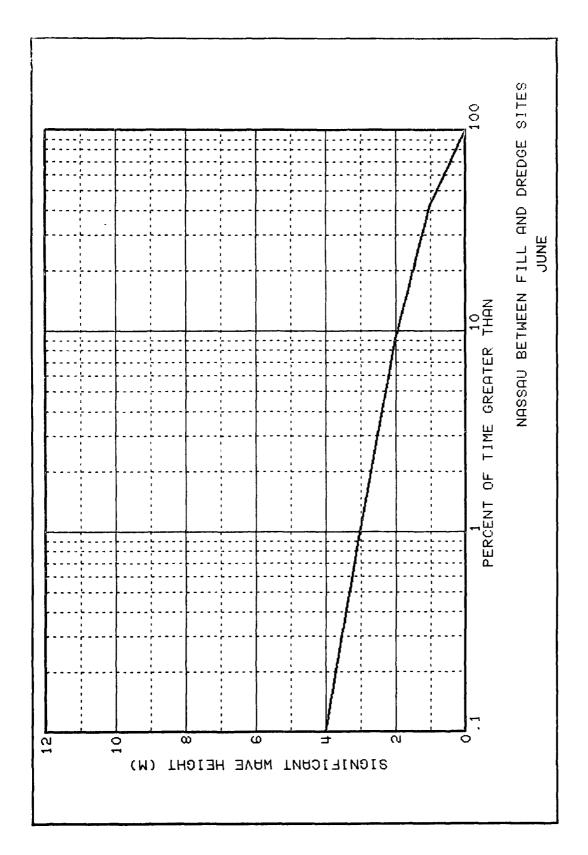
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	₹2- 8	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
00-01	39,91	7.45	3,94	1.52	0.22	0.23	01.0	0.00	0.18	0.65	54,20
91-05	25.44	6.08	1,89	0,63		0.23	00.00	00.00	0,02	0.15	34.72
02-03	8.37	0.68		0.33		0,03		00.00	00.00	0.00	9.94
h0-e0	0,94	00.00	00.0	0.00	00.0	0.20	00.00	00.00	00.00	00.00	1,14
04-05	00.00	00.00	00.0	00.00	00.00	00.00		00.00		00.0	0,00
05-06	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
20-07	00.00	00.00	00.00	0.00	0.00	00,00	00.00	00.00	00.00	00.00	00.00
07-03	00.00	00.0	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
60-80	00.00	00.00	00.00	0.00	0.00	0.00	0.00	00.00	00.00	00.00	0.00
03-10	00.00	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0,00	00.00	00.00
TOTAL	74,65	14,21	6.36	04.90	0.50	0.70	0.10	00.00	02.0	0.79	



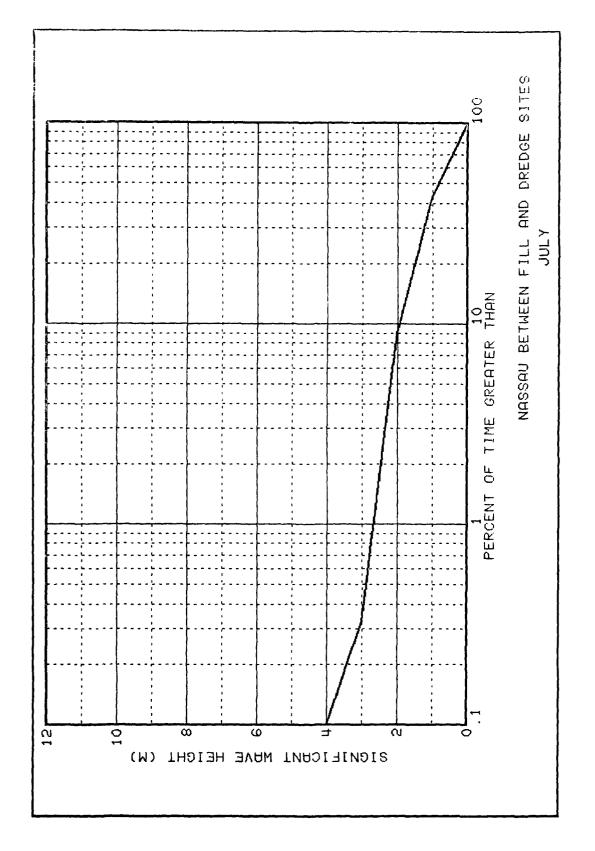
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-23	>22	
00-01	43.79	8,42	2.83	09.0	0,08	0,09	0.09	00.00	0.26	1.27	57,43
20-10	24,46	7.12	0,92	0.45	0.19	0.17	00.00	00:00	0.02	0.09	33,43
02-03	7,38	0.47	90.0	0.04	0.09	0.04	00.00	00.00	00.00	0.00	8,09
HO-E0	0.75	0.15	00.0	00.00	00.00	0.14	00.00	00.00	00.00	0.00	1,04
04-05	00.00	0.00	0,00	00.00	00.00	00.00	0,00		00.0	00.0	00.00
90-50		00.00		00.00	00.00		00.00		00.00		0.00
06-07	00.00	00.00	00.00	00.00		00.00		00.00	00.00	00.00	00.0
07-08		00.0	00.00	00.00	00.00	00.00	0.00		00.00	0.00	00.00
60-80		00.00	0.00	00.00	00.00	00.00	0.00		0.00	0,00	0.00
03-10	00.00	0.00	00.0	0,00		00.00	00.00		0,00	00.00	00.0
TOTAL	75.38	16.17	9,81	1.09	0.36	0.45	GO 10	0.00	0.87	1,86	



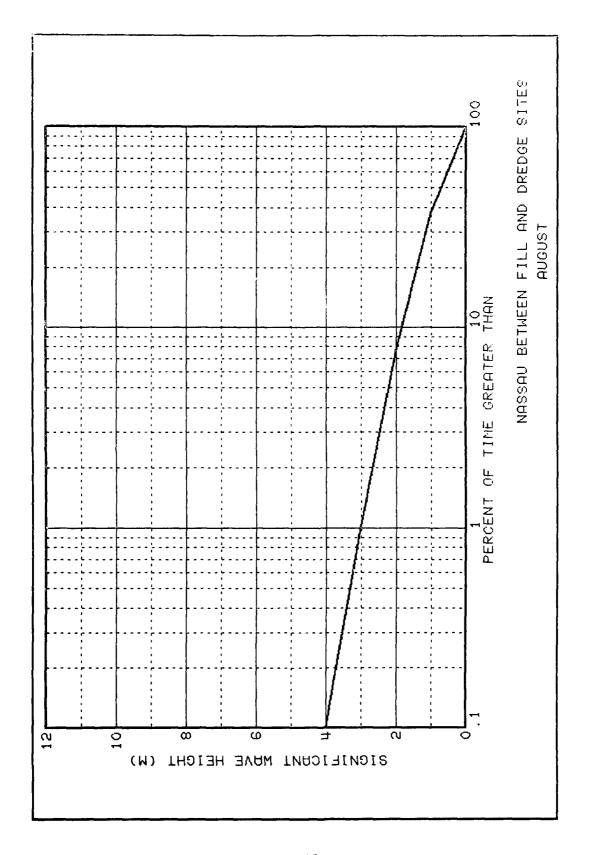
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-25	>22	
10-00	46.42	6.71	1,63	0.90	0.14	0.08	0.00	0.00	0.00	1.35	57.24
50-10	24.61	7.56	0.65	0.25	00.00	90.0	00.0	0.25	0.00	0,38	93.74
02-03	8,13	0.29	0.17	00.00	00.00	00.00	0.00		00.00	00.00	8.58
40-E0	0.18	00.00	0.00	00.0		0,14		00.00	00.00	00.00	0.33
04-05	00.00	00.00	00.00	00.00		00.00		0.00	00.00	00.00	00.00
05-06	00.00		00.00	00.00		00.00		00.00	00.00	00.00	00.00
06-07	00.00		0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
07-08	00.00	00.00	00.00	0.00	00.00		0.00	_	0.00	0.00	0.00
60-80	00.00	00.00	00.0	00.00	00.00	00.00	00.00	_	00.0	00.00	00.0
01-60	00.00	00.00	00.00	00.00	00.00	٥٠°0	ω·ω	00.00	00.0	65.0	00.0
TOTAL	79,40	14.55	2,45	1,15	0.14	0.29	00.00	0.29	00.00	1.78	



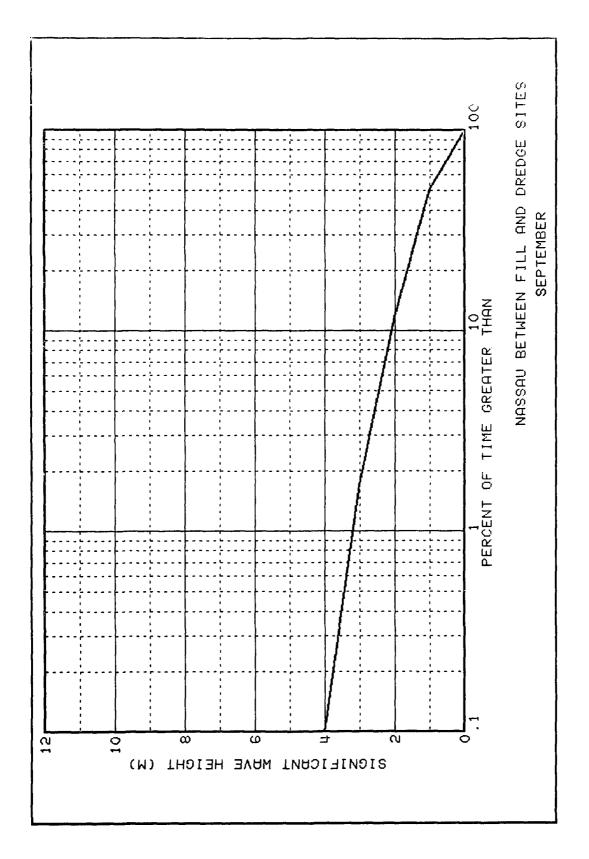
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

(
6-8 8-10
9.60 u.uu
6.05 2.17
00.00 00.00
00.00 00.00
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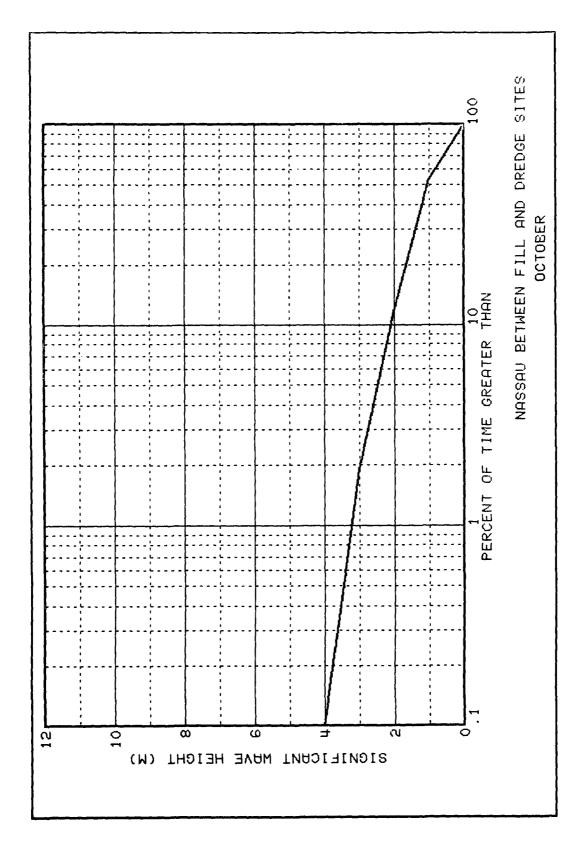
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-18	16-18	18-20	20-22	>25	
00-01	32,75	9.29	4,68	0.91	0.04	0.11	0.16	00.00	0.53	0.78	49.25
50-10	21,89	9,62	3.79	2,30	19.0	0.59	0.02	00.00	0.02	0.09	38,95
02-03	6.02	2,40	0.26	0,59	0.42	0.34	90.0	00.00	00.00	00.00	10.08
tio-60	0,99	0.27	0.09	0.07	00.00		0.00	_	00.00	00.00	1.71
04-05	00.00	00.00	00.00		00.00		0.00		00.00	00.00	00.00
05-06	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00
06-07	00.00	00.00	00.00	00.00	00.00	0.00		0.00	00.00	00.00	00.00
07-08	00.00		00.00	-	00.00	00.00	00.00	_	00.00	-	00.00
60-80	0.00	0.00	00.00	0,00	00.00	00.00	00.00	00.00	00.0	0010	00.00
09-10	00.00	00.00	0.00	00,0	00.00	00.00	ن٠٠٥	0.00	00.00	ن ن ن	ώ°0
TOTAL	61,65	21.57	න ශ	9°°E	1.10	1.39	0.24	0.00	0,03	0,07	



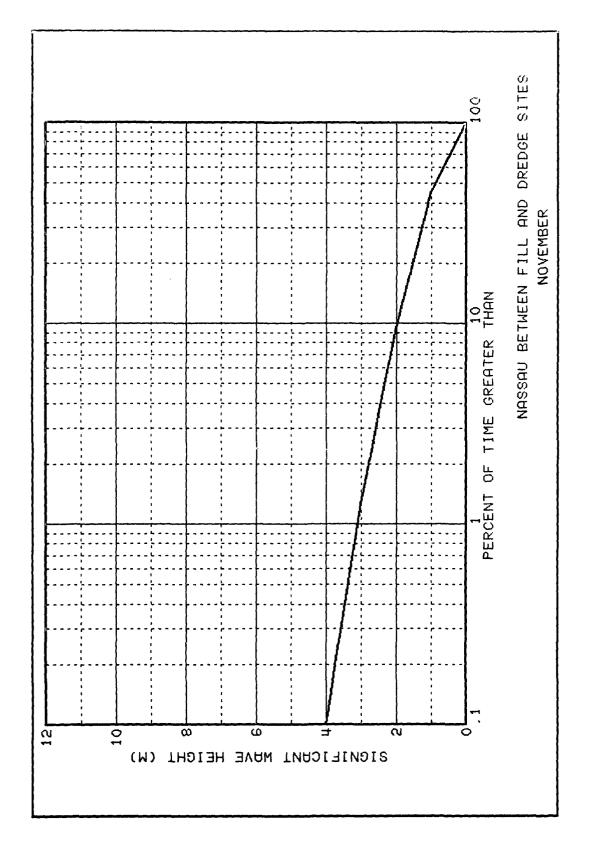
NHSSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-E	8-8	8-10	10-12	12-14	91-h1	16-18	18-20	20-22	>22	
10-00	27.60	10.40	8,86	1.00	0,28	0,04	00.00	00.00	00.0	0.63	46.81
01-02	19,02	16,11	10.3	3.32	0.64	14.0	0.00	0.00	00.00	0,10	41.41
02-03	5.23	2,58	94.0	1,03	0.39	90.0	0.07	00.0	0.00	0.00	9 88
40-E0	1.24	0.24	10.0	0.19	0,22	00.00	00.00	00.00	00.00	0.00	1,90
20-40	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
05-06	0,00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
20-90	00.00	00.00	0.00	00.00	00.00	00.0	00.00	0.00	0.00	00.0	00.00
07-08	00.00	00.00	00.00	00.00	00.0	00.00	00.00	0.00	00.00	0.00	0,00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.0	0.00
01-60	00.00	0,00	00.0		00.00	00.00	0.00	00.00	0.00	0.00	0,00
TOTAL	53,13		13,3			0.51	0.07	00.00	00.00	0.73	



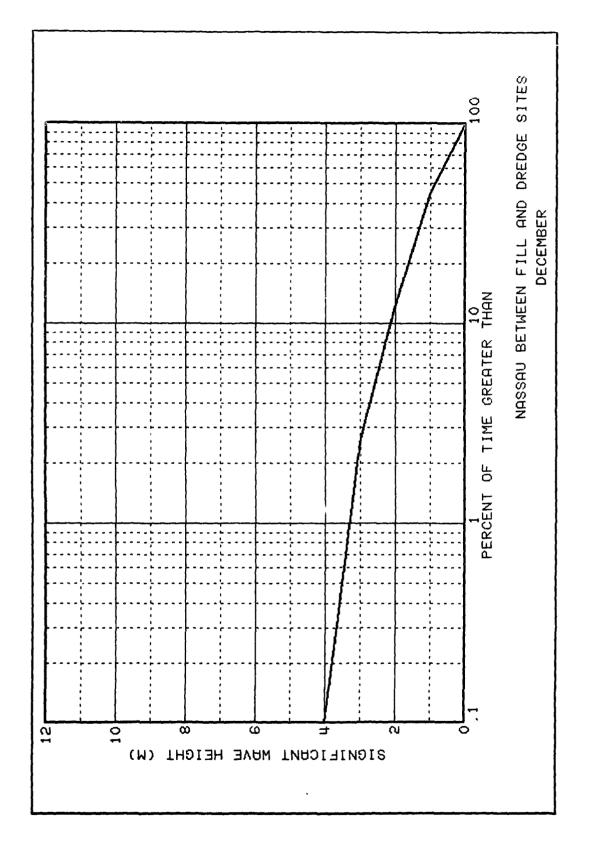
NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)				_	PERIOD (SEC)	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25 52	
10-00	37.27	10,65	±6.4	1.80	0,09	0.02	0.00	00.00	0.00	0.34	55,11
20-10	19.21	9.50	4.48	1,39	0.38	0.24	0.01	0.00	0.00	0.15	35,36
05-03	5,23	1.50	0,42	0.61	0.28	0,15	0.08	00.00	0.00	00.00	8.25
+0-€0	0,85	0.25	0.00	0.17	00.00	0.00	0.00	00.00	0.00	0.00	1.27
04-0S	00.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00
05-06	00.00	00.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	00.00	00.00	0,00	00.00	00.00	00.00	0.00	0.00	0.00	0.00	0.0
07-08	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00
60-80	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	00.0	00.00	0.00
01-60	00.00	00.00	0,00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	0,00
TOTAL	62.56	21,90	69. 69	96.6	0.74	0.41	o.0e	0.00	0.00	0.50	



NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	91-41	16-18	18-20	20-22	×25	
00-01	39.20	9.85	4.10	0.79	0,55	0,19	0.22	00.00	0.00	0.62	55.52
01-02	19.31	8.26	3,41	1.16	00.00	0.14	00.00	00.00	0.00	0.04	32,33
02-03	7.53	0,82	0.44 44	0.25	0,52	0.05	0.00	0.00	0.00	00.00	9,60
40-E0	1.40	6,49	0.00	0.22	0,25	0.18	00.00	0.00	00.00	00.00	P. 54
04-05	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00
02-06	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00
06-07	0.00	00.00	00.00	0,00	00.00	00.00	00.00	0.00	0.00	0.00	0.00
07-08	00.00	0.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00
60-80	00.0	00.00	00.00	0.00	0.00	00.00	0.00	0.00	00.00	0.00	0.00
09-10	00.00	00.00	00.0	0.00	00.00	0.00	00.00	00.00	0.00	00.0	00.00
TOTAL	67.44	19,42	7,95	2,43	1.32	0.55	0. 2 8	0.00	00.00	99.0	



NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 0

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	52 <	
10-00	00.00	0.00	0.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	0.00
01-02	00.00	0.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	
02-03	0.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00
03-0H	00.00	0.00	00.00	00.00	00,00	0.00	00.00	0.00	0.00	0.00	0.00
04-05	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00,00	0,00	00.00	0,00
05-06	00.00	00.00	0.00	00,00	00.00	00.00	00.00	0.00	0.00	0.00	0.00
06-07	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00
07-08	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00
01-60	00,00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00	0,00
TOTAL	0.00	0,00	0,00	00.00	00.0	00.00	00.00	00.00	00.0	00.00	

NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 30

HEIGHT (M)				_	PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	× 22	
10-00	9,05	2.12	0.58		0.03	10.0	00.00	00.00	0.00	0.00	11,97
91-05	0.05	0.14	0.41	0,29	0,05	0.02	0.00	00.00	00.00	0.00	0.95
02-03	00.00	00.00	0.02	0.05	0.04	00.00	0.00		00.00		0.14
40-E0	00.00	00.00	00.00	0.01	0.03	00.00	00.00	00.00	0.00	00.00	0.0
04-05	00.00	00.00	00.00	0.00	0.00	00.00	00.00	0.00	00.00	00.00	0.00
05-06	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	00.00	0.00	0.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00		00.00		00.00	0.00
07-08	0.00	00.00	00.00	0.00	00.00	00.00		00.00	00.00	00.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00	00.00
09-10	00.0	0.00	00.00	0,00	00.0	00.00	00.00	00.00	00.00	00.00	00.00
TOTAL	9.10	2.28	1.04	0.53	0.14	0,03	00.00	00.00	00.00	00.00	

NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 60

HEIGHT (M)				_	PERIOD (SEC)	(SEC)					TOTAL
	45-€	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	\ \ \	
10-00	11,85	9°08	1.48	0.30	90.0	10.0	0.04	00.00	0.02	0.23	17.10
01-05	5,34	2.94	1,41	0.64	0.15	0.08	10.0	0.00	0.01	0.04	10.62
02-03	0,54	0.57	0.12	0.24	0.11	0,05	0.02	0.01	00.00	0.00	1.65
40-E0	0.14	0.05	00.00	0.04	0.03	0.04	00.00	00.00	0.00	00.00	0.30
04-05	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	0.00
02-06	00.00	00.00	00.0	0.00	00.00	0.00	00.00	00.00	00.00	0,00	0.00
06-07	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00
07-08	00.00	00.00	00.00	00.00		00.00		00.00	00.00	0.00	0.00
08-03	00.00	00.00	00.00	00.00		00.0		0.00	0.00	00.00	0.00
09-10	00.00	00.00	00.00	0.00	00.0	0.00	0,00	00.00	0,00	00.00	0,00
TOTAL	17.88	6.54	3.00	1.22	0810	0.19	0.03	0.01	₹0°0	0,28	

NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 90

HEIGHT (M)					PERIOD	(358)					TOTAL
	<5-6	භ - ශ	01-8	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	3,88	10.1	1.01	0.25	0.14	0.09	0,03	00.0	0.04	0.15	6,59
90-10	11 th	1.61	0,51	0,23	0,09	01.0	00.00	0.00	00.00	0.01	හ. ගේ
05-03	1.22	0.33	0,08	0.02	0.02	60.03	00.00	00.00	00.00	0.00	1.63
10-60	0,15	0.05	00.0	00.0	00.00	00.00	0.00	00.00	00.00	00.00	0,21
04-05	0.00	0.0	00.0	00.0	00.0		00.0	0.00	00.0	0.00	00.0
05-06	00.0	0.00	00.0	00.00	00.0		00.0	00.00	0010	00.00	00.0
06-07	00.0	00.00	00.00	0.00	00.0		00.00	0.00	00.0	00.0	00.0
07-08	0.00	0.00	00.00	0,00	00.00	00.00	0.00	00.00	0.00	00.00	0.0
60-50	00.0	00.00	00.0	00.0	0.00	00.0	0°.0	00.00	ن ¹ 00	00.0	0 0. 0
03-10	0.00	0.00	0,00	0.00	00.0	00.00	0.00	00.00	0019	0.00	00.0
TOTRL	9.70	ი ი ი	1,50	0.50	97. O	0.21	0.03	00.00	0.04	0.15	

NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 120

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	က (ဝ	8-10	10-12	12-14	97-47	16-18	18-20	20-22	>22	
00-01	3.80	1.89	0.85	0.25	0.01	0.01	10.0	0.01	0.05	0.20	6.21
01-02	3,45	0.83	0,05	0,11	0.04	0.04	0.01	0.01	00.00	0.03	4,56
02-03	1,18	0.03	00,00	0.05	0.01	0.01	00.00	00.0	00.00	00.00	1,30
h0-60	0.20	00.00	00.0	0.01	00.00	0,03	0.00	00.00	00.00	0010	0.23
04-05	00.0	0.00	00.0	0.00	00.0	00.0	00.00	00.00	00.00	00.00	00.0
05-06	00.00	00.00	00.00	00.00	00.00		00.00	00.00	0.03	00.0	0,00
06-07	00.0	00.00	00.0	00.00	00.00	0.00	00.00	00.00	00.0	00.0	0.00
07-08	00.00	00.00	00.00	00.00	0,00		00.0		6010	0.00	00.0
03-03	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00	ن* <i>ن</i> ن	0,00	0.00
09-10	00.00	00.00	00.00	00.00	0,00	00.0	0,00	00.0	3010	00.00	Ć.
TOTAL	න න	დ ბ	0,70	8a*0	ල ර	ر. د	ું	60°0		Ü	

NASSAU BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MAVE DIRECTION = 150

HEIGHT (M)				_	PERIOD	(33 8)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	10,32	1,63	0,32	0.04	0,01	0.01	10.0	00.00	0.04	0,19	12.57
01-02	හ ලෝ	2.53	0,53	0.04	0.05	0,02	0.00	0.01	00.00	0,06	11.74
05-03	3.90	0.41	0,18	90.0	0.01	0.01	00.0	00.00	00.00	00.00	დე.†
±0-€0	6h.0	0,09	ं अस	0,02	00.00	0.03	0.0	00.0	00.00	00.00	0.67
04-02	00.00	00.0	0.00	00.00	00.0	0.00	00.0	00.00	00.00	00.00	00.00
05-05	00.00	00.00	00.00	0.00	00.0	00.00	00.0	00.00	00.0	00.00	00.00
05-07	00.00	00.00	0.00	00.00	00.0	0.00	00.00	00.00	00.0	00.00	00.0
07-08	00.0	00.00	00.0	00.00	00.00	0.00	00.00	00.00	00.0	00.00	୍ଦ 'ଧ
08-03	0010	0,00	00.0	00.00	0,00	00.0	00.00	0.00	00.00	00.00	0010
03-10	00.0	00.0	66.0	00.00	0.00	0.00	v, ¢∩	00.0	00.0	0.00	0,00
TOTAL	23,02	0.73	1.1	0.14	0,06	0.07	0,02	0.01	0.05	0,24	

313 90 5.00 ္မ (J. C. ن درن 50°0 05.0 35.5 ゴゼェジェ 840 ç: : 0.70 0.0 0.0 ξ. . 00.0 ું (COLUMN CHA SHE BARK TO NUTURO OF BUILDING CHE SHILL BARKET 300 S : **○ ○** 000 ၁ (၂) 00.0 00.0 65.70 $\zeta := \xi$ Ç. 18-20 0:0 <u>୍</u>ଦ 00.0 00.00 00.00 00.0 0,00 ر د د €0 • 81-91 0,00 00.0 ೦೦೦ 00.0 00.00 0.00 U0.1 5.00 90° c 0010 DATE RELIES BUT B 0000 00.0 00 t Ö0 -00.0 00.0 00.00 05 K Ş., 00.0 35 417-57 (j.) € 60° 00.0 0,00 001eE Ç. 3 00.0 00.00 Ç€ (¢ 00.0 0010 93 00:0 00.0 0.00 00,00 3 \$16° E Ç 4 57.5 ् |-|-9 Q : S :3 001 00.0 Ç. ... 00.0 Š 0019 3 00.0 50.00 S 30 ୃତ : ତ υύ ' č 00.00 00.0 0.00 , 2<u>0</u> 007 9 00.7 0000 ું. 0010 00.0 00.00 0016 0.00 会に対象に 50 177 - SS 30-40 71:-6: 31-10 05-06 08-07 80-60 80-80 03-00 7101

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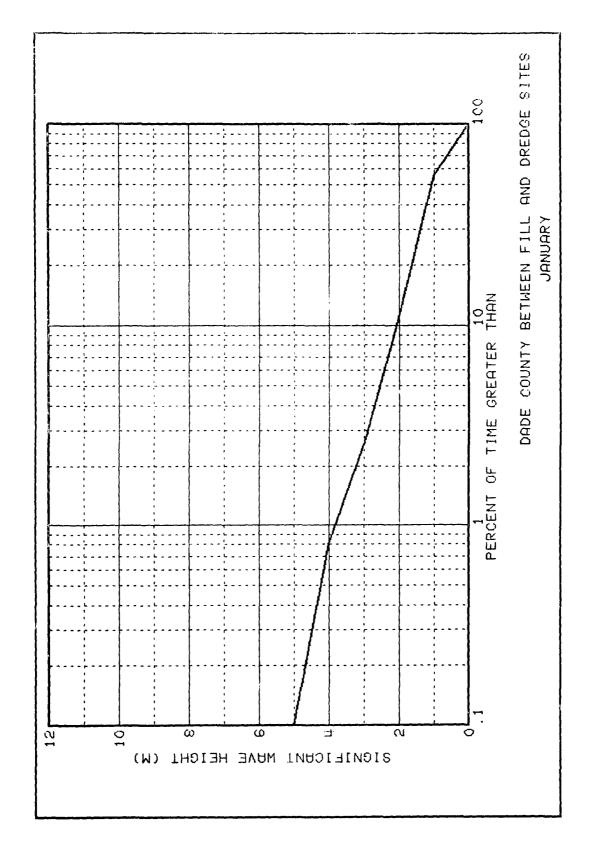
SHALL BECARE ONE THIS NEEDED CHOSEN

APPENDIX F: AVERAGE WAVE CLIMATE AT DAME COUNTY, FLA.

- 1. Appendix F contains the following information for the Dade County, Fla., project site:
 - <u>a.</u> Tabulations of monthly percent occurrence of wave-height/period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

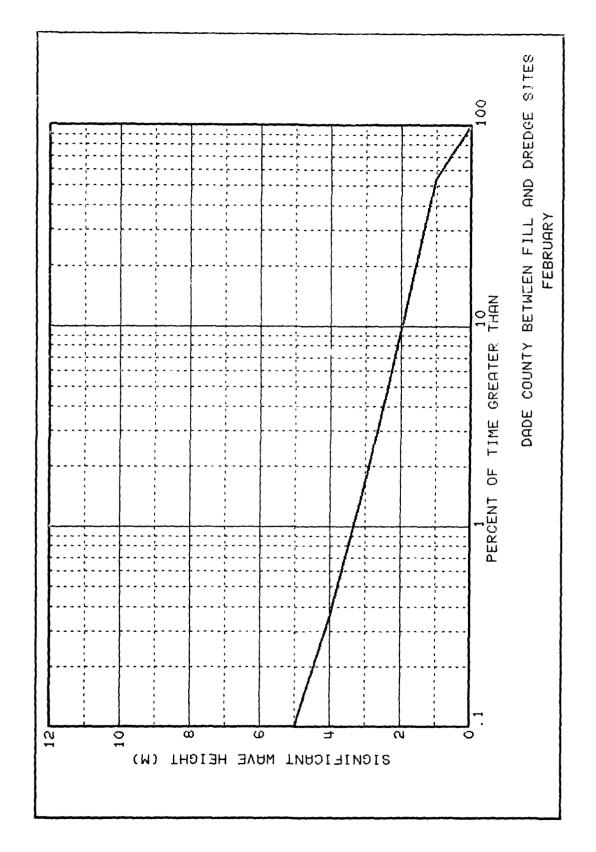
DANCE ACTIVE SER A CHELL TRADESCENCY AND DEFICIT PRO PARTICLES.

HEIGHT (M)				•••	PERIOD	(SEC)					TOTOT
	3-69.	œ -c	01 k	20-07	11-21	14-16	67 - y 7	10-20	PO-32	25.	
10-00	ž,	7 05		80°°	0.39	90,0	S.05	0.00	(7)	0.87	€0.1 11.00
Q1+10	23.33	क्रि इ.स. इ.स.	() ()	्य स्थ	0.00	0.16	0.03	0.00	30.0	13	있 ::
0.84-0.9	55 54	e.0e	(C)	సి. ర	is o	60°C	hC 15	0.00	00.0	5	8
h0-80	0.17	0.27	ingle o	67.0	0.28	0°0	00.0	0.01	00 1 0	ଅଧିକ ଦ	
50-h≎	0,11	00.00	50.0	0,87	00.0	0,15	00.00	0.08	90.0	ر: ۲	S 0
9C-Sú	00,00	0,00	00.00	00.0	00.0	00.00	00.0	00.00	00.0	∂ √ *0	03.0
06-07	0.00	00.0	00.00	00.0	00.0	, 0	0.00	00.0	00.00	୍ଦ୍ର	3 5
07-38	00.0	0010	00.00	00.00	00.0	00.0	00.0	00.00	00.00	00.0	0.00
60-80	00.0	00.00	00.0	0.00	0,00	0,00	0,00	00.0	٥, ٠	ć, Č	ري ري
03-10	00.00	00.00	0,00	0.00	ಂ.	0,00	00.0	0.00	00°U	₹	-
TOTAL	65,70	21,57	ik. 3	K.	1,85	GH*0	0.12	90.0	0110	<u>:</u> :	



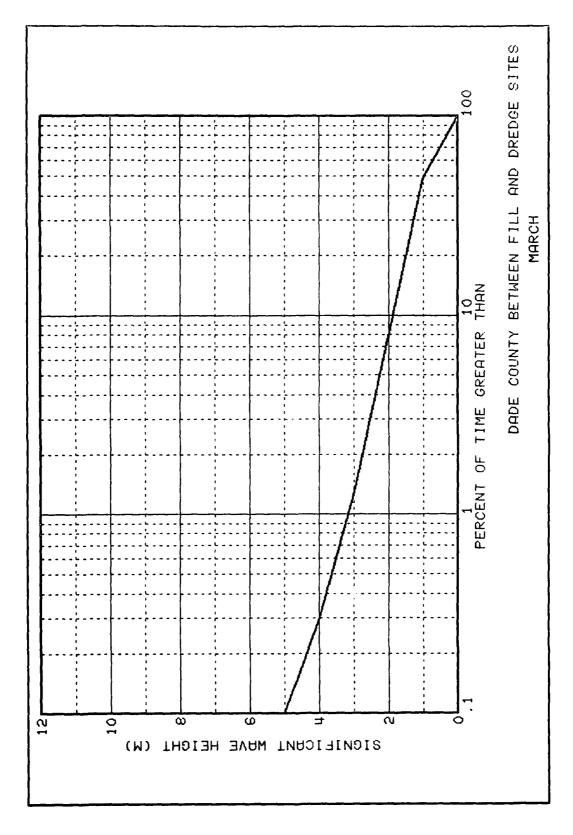
DADE OCHWIY BETWEEN FILL AND DREDGE SITES CUMCLETIKE SEG / SWELL FREQUENCIES OF WAYE HEIGHT AND PEPIOD FOR FIBRUARY

E THE LAND					301810	*(090)					10101
	\$. \$^	6-9	& 0 1 4 0	10-15		31-n1	16-13	18-20	20-22	>22	
10-00	35,47	7,30	66.3	නි ර	S110	0.0	0.0	00.00	e d	က် (၁	હે. હેમ
80- 1 0	28,42	11,29	3.3 <mark>2</mark>	ଜ୍ଞ ୍	ତ୍ୟ (୯	0.04	00.00	00.00	0.02	10 10	स्य, ट्र
S 원상	(C)	o) o)	0)	ن با با	0.:7	01.0	0.09	00.00	00.00	:: 6	7. CG
#C-80	0,17	(a) (b) (c)	0.49	ର ଅଧି	0.05	0.01	60.0	00.00	0.00	0.03	() () -1
S0+40	0.34	0.00	e Ĉ	୫୦°୦	30.0	0.05	00.0	00.00	00.00	00.0	15 C
35-36	0.00	00.00	0016	00.00	00.00	00.0	00.0	00.00	00.00	00.0	00.00
08-07	0.00	0.00	00.0	00.00	00.00	00.0	00.0	00.0	00.00	00.00	00.00
80-20	00.00	00.0	00.0	0010	0.00	0.00	00.00	00.0	00.00	0,00	00.0
€0~ 6 0	00.0	00.00	0,00	00.0	0.00	00.00	00.0	00.0	00,0	0.00	00"0
07-80	00.0	0.00	0.00	00.0	00.00	00°0	00.0	00.0	0.00	00.0	6.13
TOTAL	ରବ,୧୧୧	21.80	رة ون	୍ଷ ପ	0.69	0.25	0.13	00.00	01.5 0	0114	



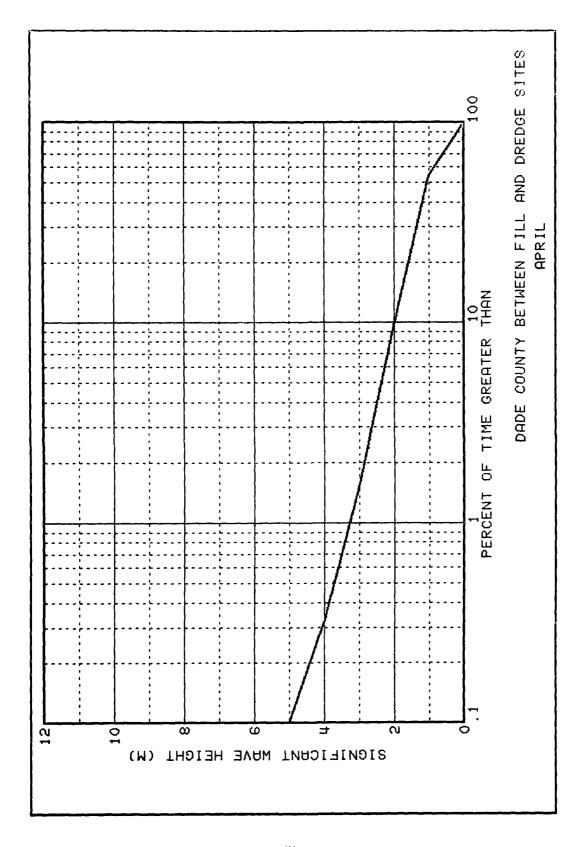
DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEH / SWELL FREQUENCIES OF MAYE MEIGHT FUD PERIOD FOR MARCH

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	છે. જે-	8-8	9-10	10-12	12.14	91-hi	16-18	18-20	20-22	282	
00-01	39,03	8, 57	1.94	0.37	0.26	45.0	00.00	00.0	0.23	0.30	51.34
01-02	26.8!	9,28	3.09	0.72	0,10	01.0	0,06	00.0	01.0	0,46	40.80
SO-50	2,76	8.03	ge : ;	0,11	61.0	0.12	00.00	00.00	0.07	0.17	o: ::
50-80	0.21	0.24	Ø.€	େ.୦	30.0	00.00	00.0	00.00	00.00	0.02	0.93
04-02	0.08	0.00	0.12	0.00	00.0	90.0	00.00	00.0	0.00	0,00	0.29
05-06	0.00		00.0	0.00	00.0	00.0	00,00	00.00	00.00	00.00	00.00
06-07	00.00		00.0	00.00	00.0	00.00	00.0	00.0	00,00	00.0	00.00
80-70	00.00	00.00	00.0	00.0	00.00	0.00	00.0	00.00	0.00	0.0	00.0
60-80	00.00	0.00	00.0	00.00	00.0	00.0	0.00	0.00	0.00	JO.0	00.0
01-60	0010	0.00	0010	0.00	00.00	00.0	00.0	00.0	0.00	00.0	9010
7078	68,88	68,89 19,90	S. 55	8,56		6.59 0.52 0.08	SO.0	0.0	0.00	(c)	



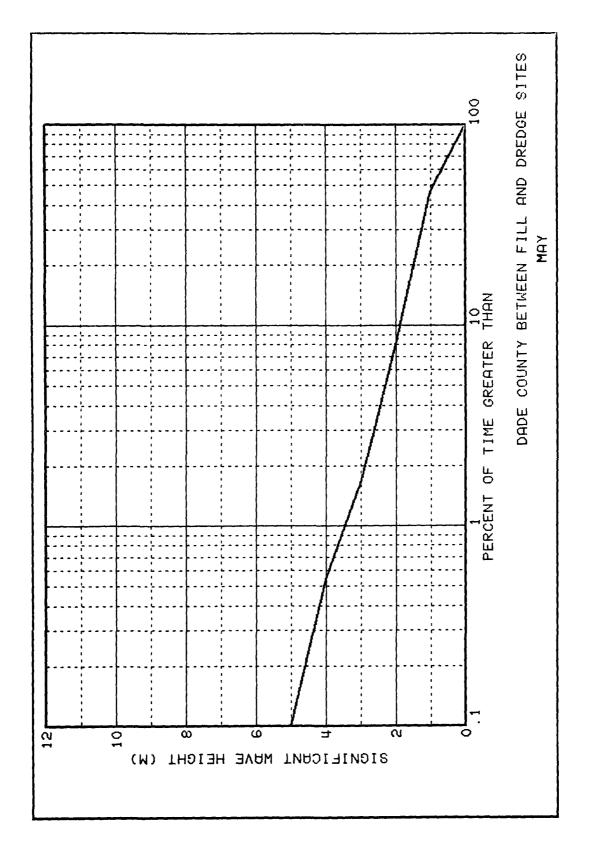
DADS COUNTY BITWEEN WILL AND DREDGE SITES COMPULATIVE SER WELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR APRIL

CM) THOUSE					OCERTOD	(SEC)					TOTAL
	(S-8)	8	01-3	21-01	41-51	14-16	81-91	18-20	20-22	>22	
00-01	36.22	5.16	1.89	0,52	0,15	00.0	00.0	0.04	00.0	1.06	64.3h
01-05	38.82	12,20	ල: •ට	0,85	0,25	90.0	00.00	90.0	00.00	ଓ:୧୭	86. Hp
02-03	න ආ	න භ	() ()	o, upu	0.88	0,05	00.00	େ ୍ଷ	60,0	0.11	ت ئ ئ
93-04	0.03	0.32	io V	Ser.	0.08	00.0	00.0	00.0	00.00	0.0	67
04-05	0.13	00.0	0.08	0.05	େ ଓଡ	00.00	00.0	00.00	00.00	00.0	୦.ଅଧ
05-08	00.00	00.00	00.0	00.00	00.00	00.0	00.0	00.00	0.00	0,00	
20-90	0.00	00.00	0.00	00.0	00.0	0,00		00.0	00'0	00.00	(S) (C)
07-08	0.00	00.0	00.0	00.0	00.0	00.00	00.0	00.0	00.00	00.00	0,00
06-09	0.00	00.00	00.00	60.0	00.00	00.0	0,00	00.0	9,00	2,00	ij 0* υ
03-10	00.00	0.00	00.0	60.0	0,00	00,0	00.0	00.0	00.0	ر. ن ن	ر ان ان
TOTAL	ଟ୍ର , ଏକ	21,86	S.	2,03	0,70	0.11	0,00	0.13	ତ୍ୟୁ ଦଞ	1,66	



DAPE COUNTY BETWEEN BILL AND DREDGE SITES COMPLATIVE SER / SWELL FREQUENCIES OF WAYE MEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERICO	(SEC)					TOTAL
	نې د	8-9	\$ 2.48	70-15	12-51	31-17	16-18	18-20	50-55	732	
10-00	46,16	96°5	0,68	0,13	0,02	0.21	00.00	00.0	0.36	0u 1.1	53,47
01-02	25,36	8.97	30	૦.૩૯	०, 2प	00.0	0.05	0,00	0.16	0.58	38,54
62-73	ले ले	3.40	0.94	0.81	0,15	0,04	0.04	0.00	00.0	0.21	6.33
#C~50	01 13	0.33	0.80	0.13	0.07	0.08	0.04	00.00	00.0	0,03	
304~6€	0.00	0.09	iù N	5,65	0,04	60°0	00.00	00.0	0,05	00.00	0.51
05-08	00.0	0010	00.0	00.0	0.00	00.0	0.00	0.00	0.00	00.00	00.0
50~90	00.00	0.00	00.0	0.00	00.0	0.00	00.00	00.00	00.0	00.0	0.0
07~08	00.00	0.00	00.0	00.0	0.00	00.00	00.00	0000	00.00	00.00	0.00
60-80	6010	00.00	00.0	00.0	00.00	00.00	00.0	00,00	°°°°	00.0	0°10
01-60	00.0	00.00	00.00	00.0	00,0	00°0	00.0	0.00	00.0	ن دن	50,40
16701	6: 3 103 1	6.00	() = ()	\$ C	e e	&±.0	0110	<u>ပဲ့</u> (0,53	61 53 **	

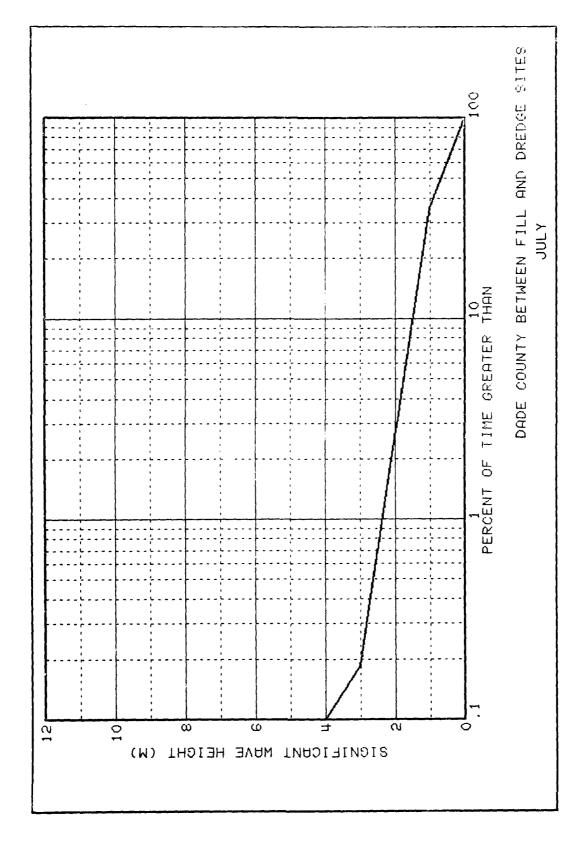


ORDE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / CUELL FRECUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	လုံ-စ	න - හ	3 - 1.0	10-12	111-01	14-1E	16-18	18-20	20-22	252	
10-00	er er	ιν Ο	7	0.58	0,00	0.41	00.00	6.05	0.45	<u>ي</u> دو	51,68
50-10	CH-145	5,7	# # #	0.10	0.17	0.17	00.0	00.00	5.23	0.10	53.62
80°80	001	5 1	65.10	ស្ត	ତ, ହଞ	0.10	0.00	00 0	90.0	0,10	3,30
03-0-	22.1	0,03		80.0	ho'o	6.03	00.0	00.0	00.0	30.0	S 1 . O
04-05		∂ ` 0	W.	2 6	00.0	0.00	0.00	00.0	00.00	0.00	ရွာ င
30-50	00.0	0010	00.0	8	00.00	00.0	00.00	00.0	00.00	0.0	ು.
\ୂ90	3	00.00	0010	00.00	0.00	00.0	00.00	0.00	00.00	0010	00.0
07-09	00.0	00.00	00.00	0010	0010	00.00	0010	00.0	00.00	00,00	0.00
60- <mark>8</mark> 0	\$2.5	00.0	00.0	0,00	00.0	00.00	00,0	00.0	0010	ن ان ان	6510
03-10	7.00	00.00	00.0	00,00	6.0 0	<u></u> ပ	υψ' <u>υ</u>	00.0	ن ئىنى	ć 	60 / C
Turburk	17,63	61,61	E .	С С	₩ 100 C		uù tu	50.0	ie o	() ()	

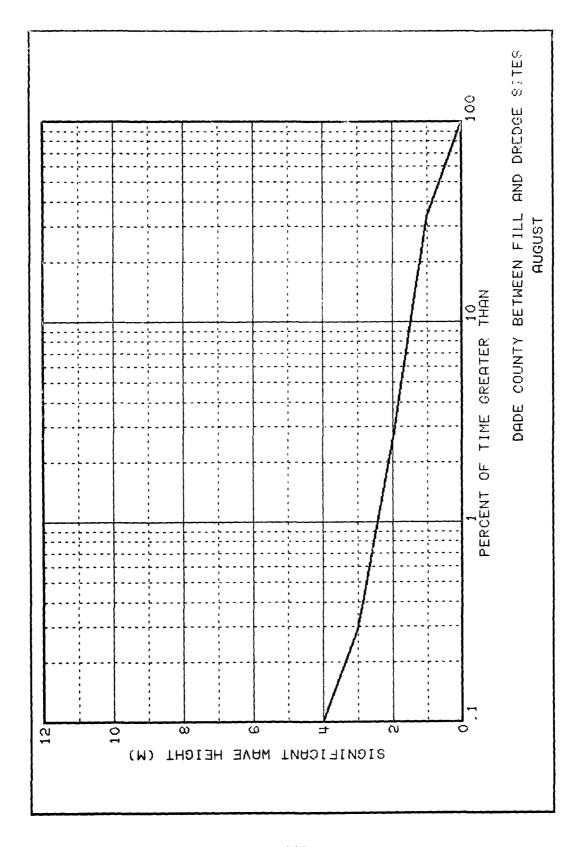
ADDS COUNTY SETMEEN THE GRY DREDGE SITES OF WAVE HERBYT AND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					1019!
	\S-8	හ - ග		10-12	a1-37	91-h1	81-81 81-81	18-20	25-65	Š	
30-01	68.33	4.00	06.0	9€*୦	0,0	0.05	0110	00.00	0.28	30.5	64,83
50-10	ଟ୍ର ପ୍ର	ର . ଜ		33.5° \$	0.0	0.08	ं ०ः	0.02	0.10	1.06	88.09
02-03	. 83	36.0	ខ្ល	÷	0,03	\$0.0	0.00	0.03	00.0	ි. ම	9. 한
tic -ec	10.7	0.00	설 ()	č.	٥٠°°°	00.0	00.0	0.00	०० ००	500	5
Se-#€	60.4	0.00	50.0	91¢	00.7	00.0	00.0	00.0	00.0	0.00	0,00
08-00	<u>Q</u>	3.00		2010	0.00	00.0	ु इ	90 %	Ö, CO	0.00	0000
20-90	00.0	00°C	00.0	00.0	60.0	00.0	0.00	00.0	00.00	00.00	00.0
07-70	8:5	6	2	, c c	0,00	0.30	U-00	00,0	00.0	رن رن	3
	<u>.</u>	\$\tag{\psi}_{\text{\tin}}\text{\tin}\text{\tett{\text{\tetx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\\\ \text{\text{\text{\text{\text{\text{\text{\text{\text{\tert{\text{\text{\text{\texi}\text{\text{\text{\texi}\text{\text{\text{\text{\texi}\text{\texitt{\texit{\text{\texi}\text{\texit{\ti}\text{\texit{\text{\text{\texi}\text{\texit{\texi}\text{	ç : ;	69.0 6	Ç	٠٠٠٠	Ç	00.00	8	ن ان ن	,
				-	٥٠.) ;	. C	C c			ć.
	٠	-					1			4	



DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	58.88	3.80	10.1	0.31	0.17	0.04	0.14	0.00	0.39	1,55	66,30
01-05	22,47	6.33	1.04	0.19	0.17	0,10	0.01	0.00	0.13	0.75	31.20
02-03	0.81	0,69	0.23	0.22	0.09	0.02	0,00	0.05	0.03	90.0	2,19
40-60	0.00	90.0	0.08	0.03	0.02	00.0	00.00	00.00	0.01	0.01	0.20
04-0S	00.00	0.03	0.01	0.05	00.00	0.00	00.00	00.00	0.00	00.00	0,03
02-06	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0
06-07	00.00	00.00	0,00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0,00
07-08	0.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00
60-80	00.00	00.00	00.00	0.00	00.0	00.0	00.00	00.00	00.0	00.0	0°°0
01-60	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	٥, ٥٥
TOTAL	82.16	16.01	2.37	0,81	3,45	0.15	0.15	0,05	0,55	P. 03	

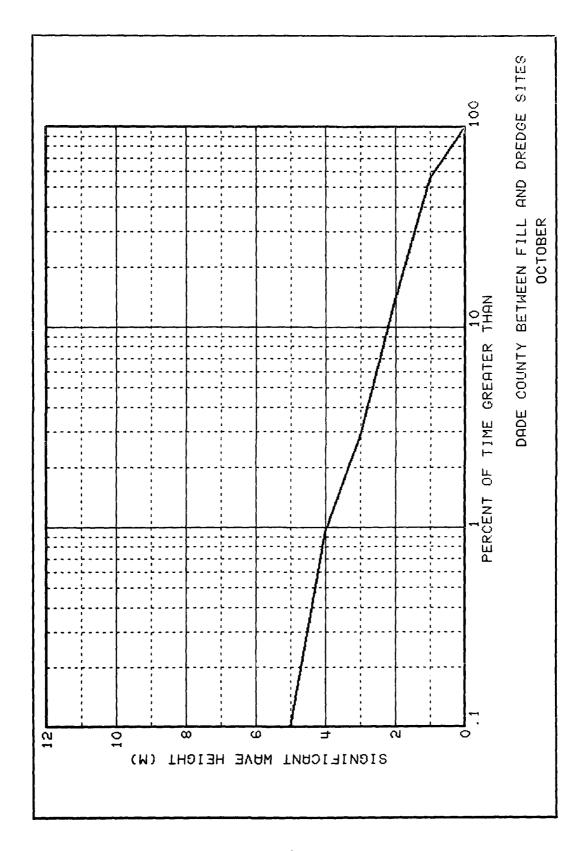


DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	91-41	16-18	18-20	20-22	>22	
00-01	44,54	5.50	1,11	0.34	0.15	0.28	0.00	00.00	0.18	0.75	52,84
01-02	27,69	9,23	1.93	0.48	0.29	0.11	00,00	00.00	0.08	0.40	40,22
02-03	1,83	1.85	1.25	0.35	0.04	0,28	00.00	00.00	0.03	0,02	5,65
40-E0	0.09	0,19	0,25	0.19	0.03	0.19	0,00	00.00	00.00	0.00	0.99
04-05	40.0	00.00	0.15	0.07	0.02	0.02	0,00	00.00	00.00	00.00	0.31
05-06	00.00	00.00	0.0	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00
06-07	00.00	00.00	00.00	00,00	00.00	00.00	00.00	00.00	00.00	00.00	00,0
07-08	00.00	0.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00
60-80	00.00	00.0				00.0	00.00	00.00	00.00	00.00	00.0
09-10	00.00		00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	0.0
TOTAL	74,19	16.77	4.69	1,42	0.53	င် စု	00.0	00.00	0.20	1,17	

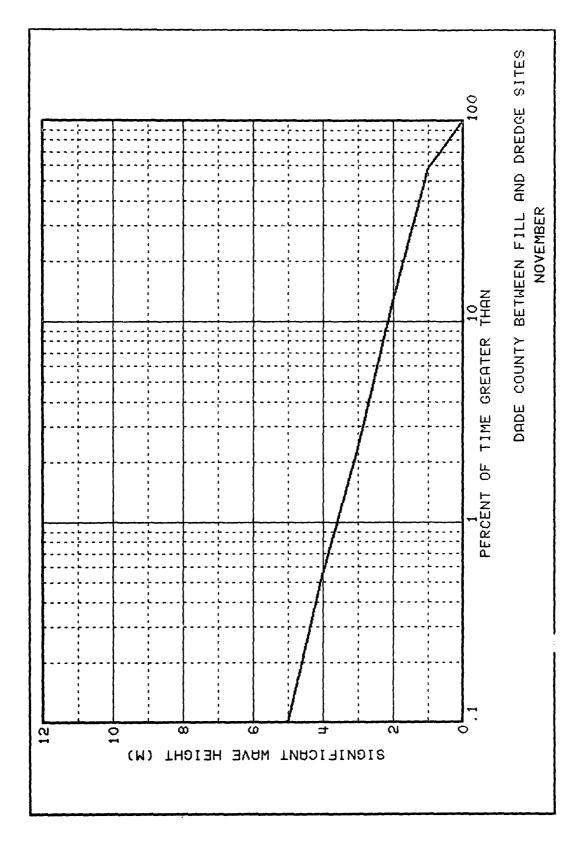
DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	34.23	7,15	1,11	0.36	0,16	0.13		0.04	0.36	0,87	44,44
01-02	24.47	12,60	3.36	0.49	0.15	0.15 0.16	0.01	0.02	0.09	0.45	41.80
02-03	2,69	3,91		1.08	0.26	0.08		00.00	0.05	0.09	10.88
40-E0	0.20	0.44	0.79	0.26	0.15	0.03		00.00	00.00	0.01	1,93
04-02	0.18	0,03	0.21	0.23	0,24	00.00		00.00	0.00	0,05	0.95
05-06	00.00	0.00	0.00	00.00	00.0	00.00		00.00	0.00	0.00	0.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00		00.00	0.00	00.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00		00.00	00.00	0.00	0,00
01-60	00.00	00.00	00.00	00.00	00.0	00.00		00.00	00.00	00.00	00.00
TOTAL	61,76	61,76 24,13	81.8	6 10 10 10 10 10 10 10 10 10 10 10 10 10	0.98	0,40		0.05	0.51	1.47	



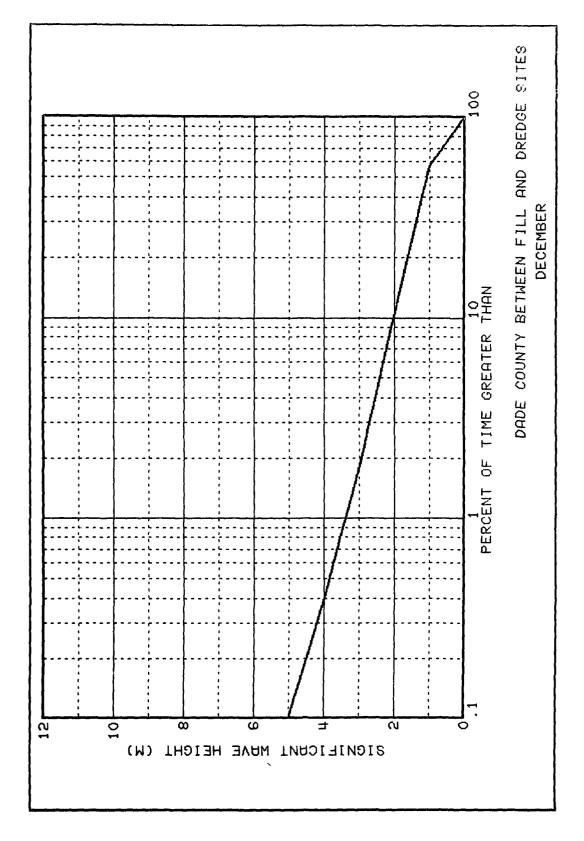
DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	80 1	8-10	10-12	12-14	14-16	81-91	18-20	20-22	>22	
10-00	31.70	7,33	1.06	0.53	0.28	0.09	0.09	0.04	0.17	0.97	42.28
01-02	26,76	14.27	9,50	0.90	90.0	0.04	0.01	0.03	0.04	04.0	45.02
02-03	2,55	4.34	2,54	0.61	0.18	0.07	00.00	0.05	0.00	00.00	10.35
50-04	0.32	84.0	6,43	0,39	0.09	0.05	00.00	0.04	0.00	00.00	1.80
04-05	0.05		91.0	0,05	0.02			0.05	00.00	00.0	0.55
05-06	00.0		00.00	0.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00
06-07	0.00	00.00	00.00	00.0	00.00	00.00		00.00	0.00	00.00	00.0
07-08	00.0	00.0	00.0	00.0	00.00	00.00		00.00	00.00	0,00	00.00
60-80	0.00	00.00	00.0	0,00	00.0	00.00	00.0	00.00	00.00	0,00	0°60
03-10	00.00	00.00	00.00	0,00	00.00	00.0	00.0	0,00	00'0	00°C	
TOTAL	61.37	25.51	6,72	9 9	0,63	0,32	0.11	9.0	0,21	1,27	



DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-1H	14-16	16-18	18-20	20-22	>25	
10-00	33.21	80,0	1,68	0.27	0.12	0.14	0.04	00.00	0.12	1.25	42,92
50-10	29.43	11,92	3,71	0.90	0.17	0.23	0.01		0.01	0.49	46.88
62- 03	2.37	99°	٤,0	0.67	0.09	0.17	0.00		0.04	0.10	8.46
40-60	0.13	0.31	0.47	0,38	0.02	0.04	0.00		0.01	0.01	1.36
04-02	00.00	00.00	0.07	0.09	0.17	00.0	90.0	00.00	00.00	00.00	ee.0
02-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.0
06-07	00.00	00.00	00.0	00.00	00.00	00.0	00.00	00.0	00.0	00.00	00.00
07-08	00.00		00.0	00.0	00.00	00.00	00.00	0,00	00.00	00.00	0.03
60-80	00.0		00.00	00.00	00.00	00.00	00.00		00.0	00.0	00.00
01-60	00.00	00.00	00.00	00.00	00.00	00.0	0.00	00.00	00.00	00.00	ღე*ი
TOTAL	65.15	21.29	7,97	P. 91	0.53	0,50	0.12	0.00	0.17	50.	



DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 0

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	×25	
10-00	00.00	00.00	00.00	0,00	00.00	00.00	0.00	00.00	00.00	00.00	00.00
20-10	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	00.00	00.00	00.00
02-03	00.00	00.00	00.00	00.00	00.00	00,00	00.00	00.00	00.00	00.00	00.00
40-E0	00.00	00.00	00.00	00.00		00.00	00.00	0.00	00.00	00.00	00.00
04-0S	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
05-06	0.00	00.00		00.00		0.00	0.00	00.00	00.00	00.00	00.00
06-07	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
07-08	0.00	00.00	00.00	00.00	00.00	0.00	_	00.00	00.00	00.00	00.00
60-80	0.00	00.00	00.0	00.00	00.00	00.00	0.00	00.0	00.00	0.00	00.0
09-10	00.0	00.0	00.00	00.00	0,00	00.0	00.0	00.00	00.00	00.00	0.0
TOTAL	00.00	00.0	00.00	00.00	00,00	00.0	0,00	00.00	0.00	0.00	

DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 30

10.05 5,68 0.05 0.05 TOTAL 0.61 0.00 00.00 00.00 0,00 00.00 00.00 0.00 0.00 0.00 0.00 0.00 0.00 000 0.00 0.00 0,00 0.00 0.00 00.0 0.00 00.00 0.00 0.00 0.00 0.00 0,00 0.00 0.00 00.0 0.00 0.00 0.00 0.00 00.00 0.00 0.00 0.0 0,00 0,0 0.00 14-16 0,0 00.0 00.00 0,0 00.00 0.00 00.00 PERIOD (SEC) 12-14 0.00 0.00 0.00 00.0 00.00 00.0 00.00 00.0 00.00 0,00 0,00 0.00 0.00 0.00 0.00 0.00 0,63 0.06 0.00 00.0 00.00 0.00 00.00 0.00 0.01 60.0 00.0 0.00 0,00 0.00 00.00 00.00 4.22 0.52 0.05 0.02 00.00 0.00 0,0 0.00 HEIGHT (M) 50-10 02-03 40-60 04-05 05-06 20-90 07-08 03-09 09-10

00.00

00.00

DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 60

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-8	8-8	8-10	10-12	12-14	91-11	16-18	18-20	20-25	\ 25<	
10-00	6,45	1,19	0,18	0,19	01.0	0.09	0.00	00.00	00.00	00.00	8.19
20-10	6,55	4.22	0.77	0.33	0.11	0.05	0.01	00.00	00.00	0,00	12,04
02-03	0.63	1,42	0,82	0.11	0.07	0.05	0.01	0.01	0.00	00.00	3.11
40-80	90.0	0.17	0.22	0,05	0.03	0.02	00.0	00.00	00.00	00.00	0.55
04-05	0.02	0,01	0.07	0.03	00.0	0.01	00.00	00.00	00.00	00.00	0.14
05-06	00.00	00.0	00.00	00.00	0.00	00.00	00.00	0,00	00.00	00.00	00.00
06-07	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00
07-08	00.00	00.0	00.00	00.00	00.00				00.00	00.0	00.00
08-09	00.00	00.00	00.00	00.00	00.00	00.00	00.0	_	00.00	00.00	00.00
09~10	00.00	00.0	00.0	00.00	0.00	00.0	00.00	00.0	00.00	00.00	00.0
TOTAL	13,70	7.02	2,06	0,72	0.30	0,82	0.02	30.0	00.00	00.00	

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS
BEACH NOURISHMENT TECHNIQUES. REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM, L Z HALES, T W RICHARDSON
WES-TR-H-76-13-4-APP AD-A102 376 UNCLASSIFIED 3 of **5** AD A -02316

DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 80

HEIGHT (M)					PER I OD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	-	18-20	20-22	52 <	
10-00	10.64	0.83	0.11	0.11		0.03		0.01	0.24	1.16	13.20
01-02	7,83	3.03	0.50	91.0	0.08	0.04	0.01	0,01	0.09		12.32
02-03	0.52	0.68	0,35	0.29	0.10	0.04	00.00	0.01	0.03	0.11	2.13
99-04	0.0	90.0	0.09	0.13	0.05	0.03	00.00	0.00	0.00	0.01	14.0
04-05	0.01	0.01	0.02	0,05	0,06	0.02	00.00	0.01	0.01	0.00	0.20
05-08	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	00.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	00.00	0.00	00.0	00.00	00.00	0.00	00.00	0.00	0.00	0.00	0.00
60-80	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	0.00
03-10	0.00	0,00	0.00	00.00	0.00	00.00	00.0	00.0	0.00	00.00	0.00
TOTAL	19.04	4,60	1.07	0.74	0.32	0.16	0.04	0.04	0,37	1.06	

DADE COUNTY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 120

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	81-91	18-20	20-22	>22	
10-00	4,29	0.73	0.42	0.08	0.02	0.03	0.02	0.00	0.00	00.00	5.59
01-05	3.04	1.87	0.39	90.0	0.01	0.00	00.00	00.00	0.00	00.00	5.37
02-03	0.18	0.25	0.14	0.02	0.01	0,00	0.00	00.00	0.00	0.00	03.0
93-04	0.01	0.01	0,02	10.0	00.00	0.00	00.00	0.00	0.00	00.00	0.05
90-02	0.01	0.01	0,02	0.00	0.00	0.00	0.00	00.00	0.00	00.00	0.03
05-06	00.00	00.00	0.00	00.00	0.00	00.00	0.00	00.00	00.00	00.00	00.00
06-07	00.00	00.00	0.00	00.00	0.00	0.00	0.00	00.00	00.00	00.00	00.00
07-08	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0
60-80	00.00	00.00	00.00	0.00	00.00	00.00	00.0	00.00	00.0	00.0	ن° 0 د
09-10	00.00	00.0	00.00	00.00	00.00	00.00	00.00	_	00.00	00.00	0.00
TOTAL	7.53	2.37	0.93	0.17	0,04	0.04	0.02	0.00	0.00	0.00	

DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 150

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-55	>22	
10-00	13.51	1.28	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.79
01-05	4.74	00.00	00.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00	H.74
02-03	0.16	00.00	00.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.16
10-E0	0.01	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	0.00	0.01
04-0S	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00
05-06	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	0.00	00.00	0.00
20-90	00.00	00.00	00.00	00.00	00.0	0.00	0.00	0.00	00.00	00.00	0.00
07-08	00.00	00.00	0,00	0.00	00.00	0.00	0.00	0.00	00.00	0.00	00.00
60-80	0.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00	00.00	00.00	0.00
03-10	00.00	00.00	00.00	00.0	_	0.00	00.00	0.00	00.00	0.00	00.00
TOTAL	18.41	1,23	00.00	0.00	٥٠,٥٥	0.00	0.00	0.00	0.00	0.00	

DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
MAYE DIRECTION = 180

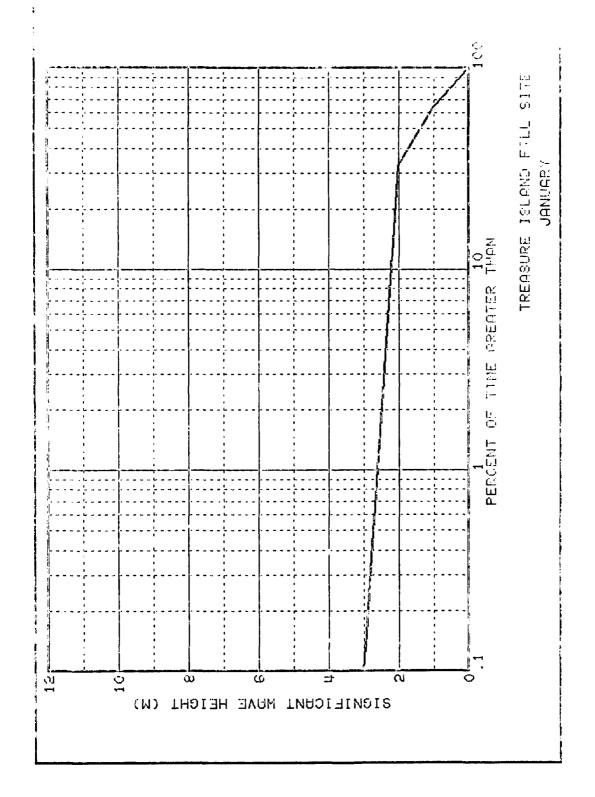
HEIGHT (M)				_	PERI OD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
00-01	00.00	00.00	00.0	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00
01-02	00.00	00.00	0.00		00.00		00.00	0.00	00.00	00.00	0.00
02-03	0.00	00.00	00.00		00.00		00.00	00.00	0.00	0.00	0.00
±0-€0	00.00	00.00	00.00	00.00	00.0	00.00	00.00	0.00	00.00	0.00	0.00
04-05	00.00	00.00	0.00	03.0	0.00	00.00		00.00		00.00	0.00
02-06	00.00	00.00	00.00	00.00	00.00	00.00		00.00		00.00	0.00
06-07	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.0
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	0.00
60-80	00.00	00.0	00,00	00.0	00.00	00.0	00.00	00.00	00.00	0,00	00.00
01-60	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.0	00.0	ું ડ
TOTAL	00.00	00.0	00.0	00.0	0.00	00.00	00.00	00.00	00.00	0.00	

APPENDIX G: AVERAGE WAVE CLIMATE AT TREASURE ISLAND, FLA.

- 1. Appendix G contains the following information for the Treasure Island, Fla., fill site:
 - <u>a.</u> Tabulations of monthly percent occurrence of wave-height/period combinations.
 - <u>b</u>. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

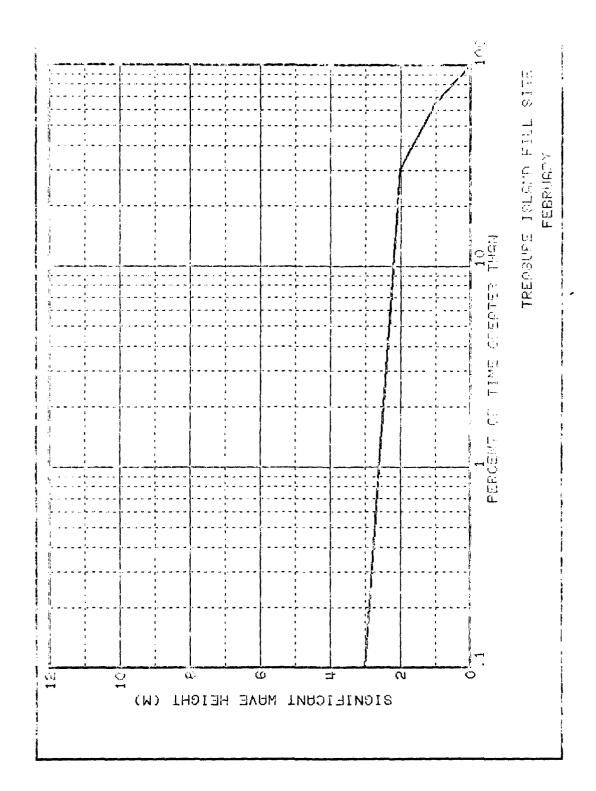
TREASURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERION (REC)	(SEC)					. I E C ·
	45-6	က် လ	01-8	10-15	#1-2T	14-18	16-18	ე ∃-81	20-22	>22	
00-01	21.58	0,10	1,35	३८ . 1	00.0	0; °	0°°0	0.63	93.0	େ ଓ	20,07
01-02	11,43	12.65	5 6	0,02	00.0	00,0	00.0	0.0	6219	: •	
02~03	10,59	e.e	ଇ.ଅଥ	6 5 6	50°5	00°0	0,00	00.0	00.0	₹2 ₹3 •	\$ 2 \$ 2 \$ 1
90-60	0,00	00.00	0:30	00.0	0,00		ن٠ن	00.0	ок. <u>У</u>	:	:
SO-to	00.00	00.00	00.00	00.0	Óυ*∂		00'0	00*0	0.170	0.10	ú.
(A) (-) (-) (-)	00.0	0 010	0.00	(3°0	ري ن	0.60	SQ 10	υυ*υ	ر		
69-07		0.23	€3 * €	Č	0.0	÷.	5.5	<i>C</i>	-		
600		<u>C. 3.</u>		٠	•		, ,	er Para K			
(U-60	e e			•		ž	•	÷.			
1911-00					-						
1.	: :		:						Ţ		



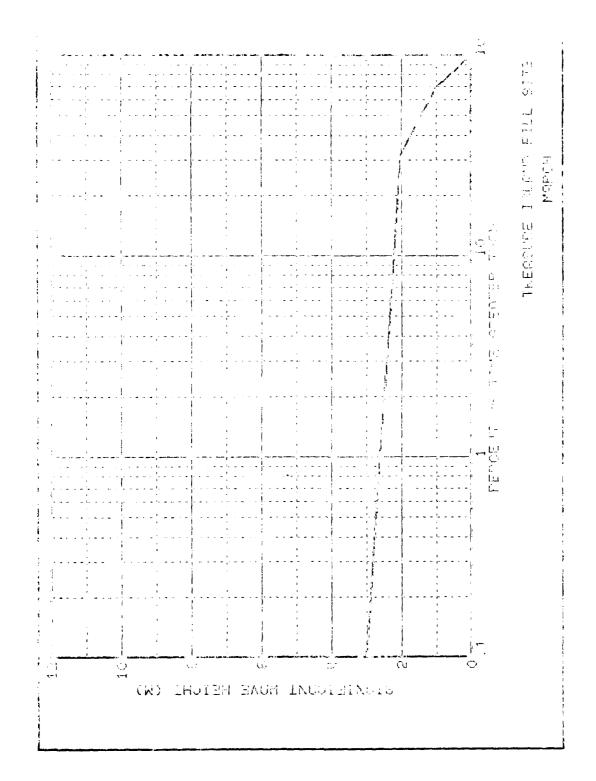
TREDSURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREGUENCIES OF WAME MEIGHT RND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	43-6	6-8	3-10	10-13	15-14	14-16	31-91	1P-20	20-25	× 25	
10-00	26,35	5, 4 5	0,13	00.00	0.00	0.00	ં, લ	٥٠٠ ٥	د• د	#C 12	8
20-10	14,33	12,46	4,74	1,41	0010	6.26	0.03	0.00	ن در	<u>C1</u>	
02-03	9,32	7,70	ତ, ପ	ရ (၁	0,61	9010	೦೮,೦	00.00	00.0	0,10	Ü
4.0~80	00.0	00.00	0,00	0.0	00.0	Ģ.	0)*3	ن٠٠٥	() () ()		;;
50-40	00.0	0°.0	00.0	00.0	0,0	0.00	00.0	ر : زن	ر ان ان	:	
30-50	00.00	3.00	00.0	ن دن		00.0	00°0	0.00	19.50 19.50		
68-67	00.00		(c) 'c	6. °C		Ę.,	0.00	<u>.</u>		1.	
27.12	ं	101 000 000 000 000 000 000 000 000 000		<u> </u>		· .	·	: \$	·		
0.00			5°			(,		•			
17.		001	00°C		÷.			-			
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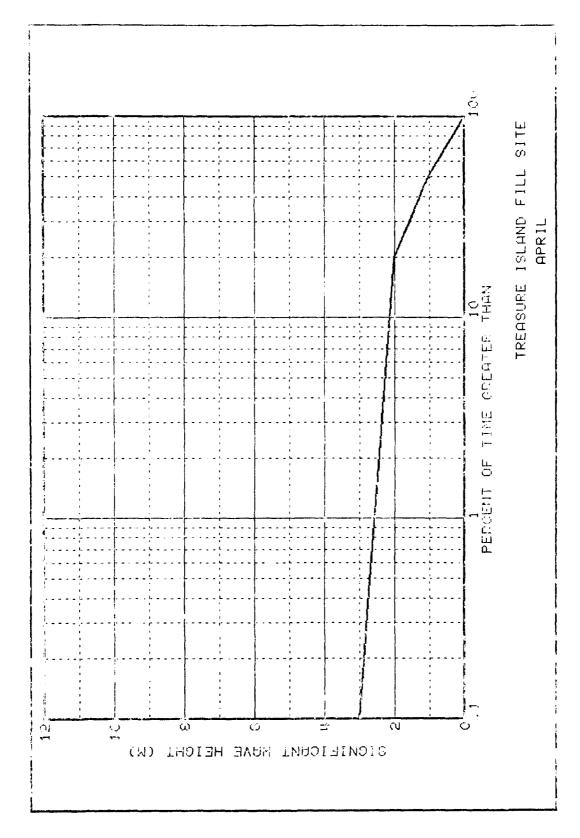
TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREEDENDIES OF MAYE MEICHT PND PERIOD FOR MAMORY

HEIGHT (M)					PERICD	(SEC)					TOTOL
	<5-6	60 -0	01-8	10-12	67-37	31-11	15-13	18-20	20-02	>22	
00-07	25,86	3,24	1,08	00°0	00.0	00.0	00.00	00.0	0.00	60.0	
S0-10	10.48	13,62	8		00.00	00.0	ن. د.	30.0	00°0	5	
02-33	19,61	7,04	0 0 0		90°¢	8	3,0	ن٠٥٠	\$ 6	€ ਵ	(· (·
5.0-20	00.0	0.00	00.00	Ç015	00.0	00°0) 4 . 1	ن این	0.70	30.5	
いのよけつ	00.00	00.0	00.0	0.70	5. 5.	00.00	600	00.0	61.13		
03-03	0.39	0.0	00.00	574	316	Ĉ.		9. Po			
00-00	9	000	er v		0.00	C Signal C					
		***	e e								
(A) +5(2)	•			. •							
0.46	<i>2</i> * €		.*	: :	÷	•		٠.			
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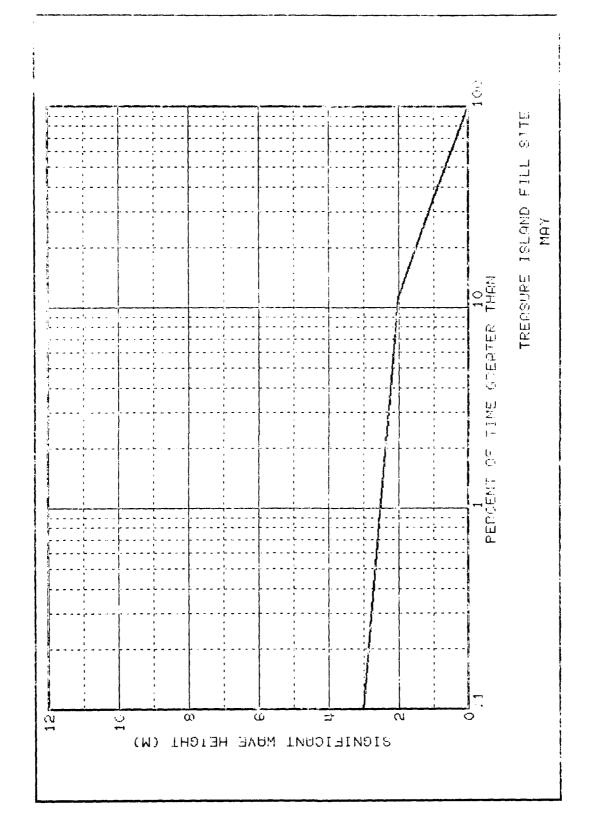
TPEGRUPE ISLAND FILL SITE CUMULATIVE SEG / SMELL PPEGUTHNIES OF POWE PSIGHT AND PERIOD TOP POMIL

(M) ENGINE					norto (STS)	50.03					بر د ن
	<55-6	<u>က</u> မ	9 5			8: 3: 4: 4: C) C)	61-63	18-50	20-30	\$ X X	
76-00	ਸ਼ਾਂ ਜੋ	(0) 10) 10)	73		5	1.69 B.77	0.0	0.10	Č		
01-02	ଧ ଚ	(6) (7)	(A)		2°	9010 500	es.	50	: 3		
(1) (1) (1) (2)	75.4	19 170	61		6.6	€. 	ć				
\$7 72 73		8	€ 								
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f) 6' 1' 2'' 6'''	Š.			<i>.</i> ·			•.	χ.			
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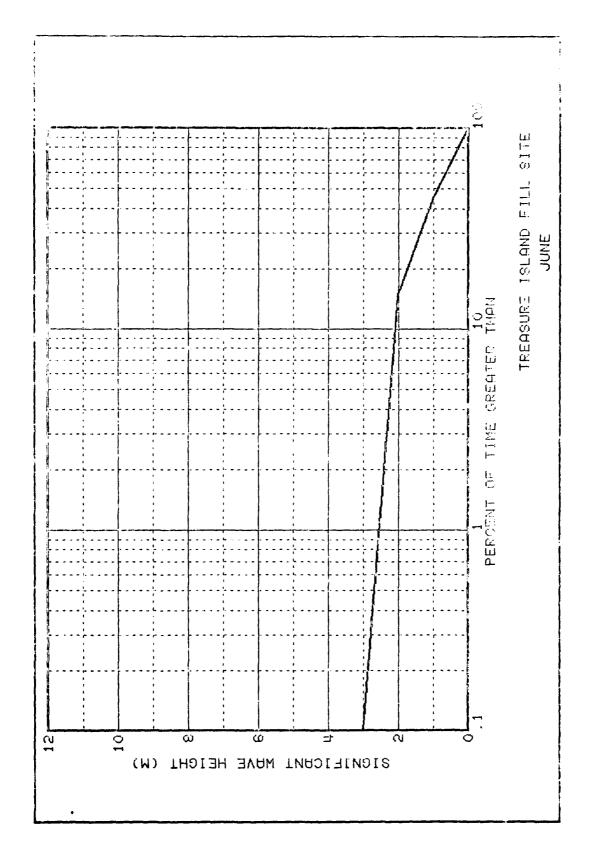
TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	₹2-8	60 80	9-10	10-12	12-14	14-1E	16-18	18-20	20-22	>22	
00-01	59.08	4,42	0.00	00.00	0.71	0.00	0.73	00.00	00.00	0.53	(5.47
01-62	17.84	4.21	0,72	00.00	0.10	00.00	0.07	0.00	0.00	0.28	18.83 18.83
02-03	5.34	S. 39	0.09	00.00	00.0	00.0	0.00	ن. ٥٥	00.0	0.0	11.
\$0-8 0	00.00	0.03	0.00	00.0	0.00	00.00	00.0	00.0	00.0	0,00	ن• رر
04-05	00.0	00.0	0.00	00.00	0.00	00.00	00.0	00.00	00.0	0.0	نئن
05-06	00.0	00.00	0.00	0.00	00.0	00.00	0.00	00.00	0.00	Ç010	<u>्</u>
06-07	0.00	0010	00.0	0,00	00.00	0010	ςυ°	0.00	00.0	€0°±	
07-03	CO C	00.00	9010	Ç) (;	00,0	ç Ç		00°0	ć. Ç.	* ~	
60-80	0,00	00.00	0,00	6.46	0,00		0.0°C	ე∪ , 0	Ę	<i>c.</i>	
01-60	0,00	00°C	00.00	9010	3010	୍ଟ୍ର	ن ، ن	€ €	0	:	
TOTAL	80.00 80.00	14,32	0,0	Ú, Ç.	0.01			60.40		· c	



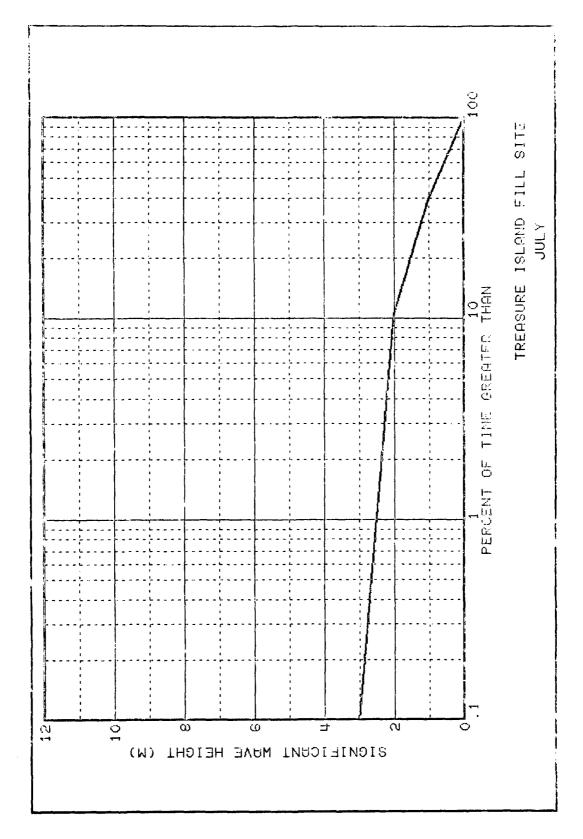
TREASURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	43-6	&-&	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	47,31	4.44	1,30	0,93	00.00	00.0	00.00	00.00	0.37	0,81	55,16
50-10	21,93	90.9	1,15	0.07	00.00	0.28	00.00	00.00	0.14	0.26	29,07
02-03	ල ී ව	2.57	1,56	05.0	00.00	0.23	00.0	00.00	0.00	0,43	38.#1
40-00	00.00	0010	00.00	00.00	00.0	90.0	00.0	00.0	0,00	00.00	00°0
011-05	0.00	00.0	00.0	00.00	00.0	00.00	00.00	0.00	00.0	0°°0	ું, છેલ
05-05	00.00	0.00	00.00	00.0	00.00	0,00	00.00	00,0	00.0	00°0	000
08-07	00.00	0,00	00.00	όυ°υ	00.00	00.00	Ú, Ú,	0, Q	0,00	ς €	37
07-93	9,73	00.0	0.00	(S)	ທຳນ		SQ to		C .	· .	
60-60	00.0	0.00	9.30	(a) t	0.1%	00.0	C .	ن دن	€ 01€		
07-50	0.00	ं ३३	0.40 00.0	() ()	ου * υ	ن این	نهارن درن				
10101	70,00	13,13	; ;;		0	0.15	5. T.	SU*0			



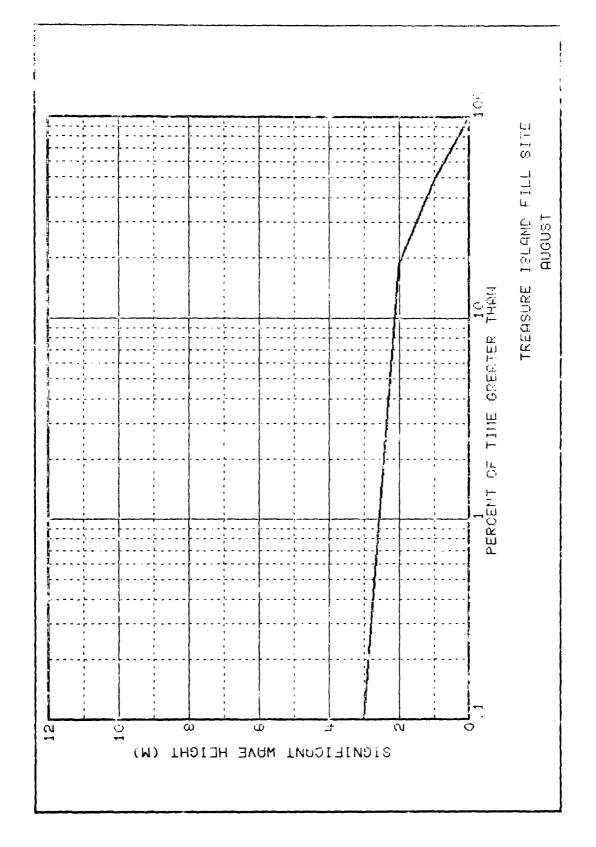
TREASURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-S	8-8	8-10	10-12	12-14	91-n1	16-18	18-20	20-22	>22	
00-01	54,97	1.18	1,42	00.00	00.00	0.42	00.0	00.00	00.00	ال ال	80.52
01-02	21.30	4.35	1.52	00.00	0,00	0.17	00.00	00.00	00.00	1,59	28,93
02-03	7,84	2,11	0,59	00.00	00.00	00.0	00.00	00.00	00.0	00.00	10,55
#0~£0	0,00	00.00	00.0	00.0	00.00	00.0	00.00	00.00	00.00	٥٠ ٠ ٥	6010
0H-05	00.00	00.00	00.0	00.0	00.00	00.0	00.00	00.00	00.0	00.0	00°0
90-50	00.00	0.00	00.00	00.00	0.00		0,00		00.00	0010	0)*0
06-07	00.00	00.00	00.00	0,00	0.00	00.00	00.0	0,00	(i) 10	Ç. *	E é
07-09	φ. γ.	0010	0,00	€01 0	CO*U	ن درق	C3.0	©0.40	C, AC	C:	.*.
60-60	0010	00.00	0,0	0,00	00,00	0000	00.00	00.0	· *- •	ું 'ઇ	
03-10	00.00	0°00	0010	00.00	00.0	0010	0,00	င် ငံ		ξ Ö	· · · · · · · · · · · · · · · · · · ·
TOTAL	89.11	7,35	o, 50	0010	00,0	8 000	ئ ئ	Ů C			



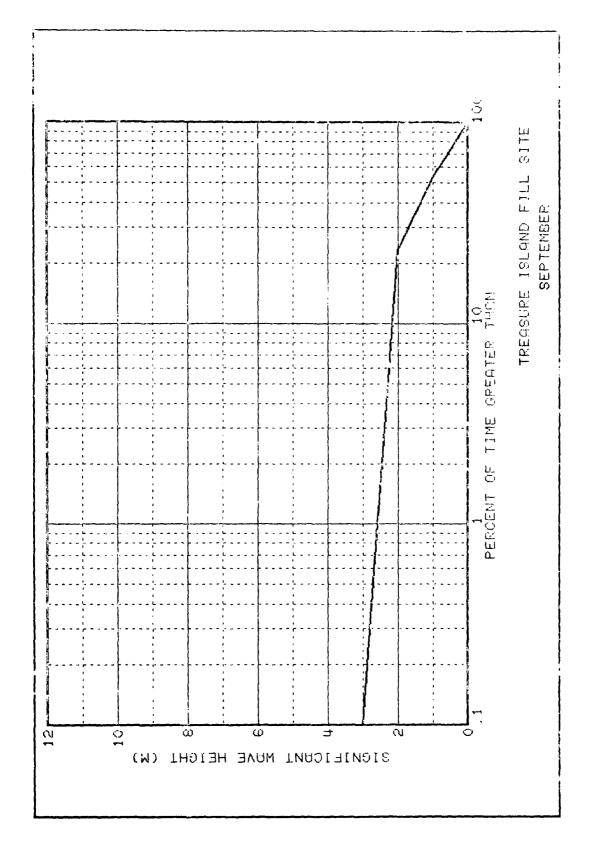
TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREGUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×8×	
10-00	43.80	2.98	0.58	00.00	00.00	00.00	00.00	0.58	0.89	2,03	51.75
50-10	18,86	7.16	1.96	00.00	00.00	0.36	0.00	00.00	0.26	1.09	29,70
9 5- 03	11.47	4.23	1,43	0.57	0.57	0.21	00.00	0.00	0.00	0.00	16.54
40-E0	0.00	0.00	0.00	00.0	00.0	00.00	00.00	00.00	00.00	00.0	00.0
04-05	00.00	00.00	0.00	00.00	00.00	00.0	00.0	00.00	00.00	00,00	00.0
05-06	00.00	00.00	00.0	00.00	00.0	00.00	00.0	0.00	00.0	00,00	0° 0
£0~30	0010	0.00	00.00	00.0	00.00	00.0	0.00	0.00	00.00	: e	Ů∪ * IJ
02-03	00.00	00.00	00.0	0.00	00.00		0.0	ن من	0.00		₹ ₹
€ 0- 30	00.0	00.00	0010	() ()	00.0	00°c	00.0	U, O	50 1 0		
03-10	(3.0	00.00	60.0	00.0	00.00	00.0	00.0	0,00	0010		
TOTEL	74,13	14,37	4,02	0.07	0.57		00,0	0010	(S)		



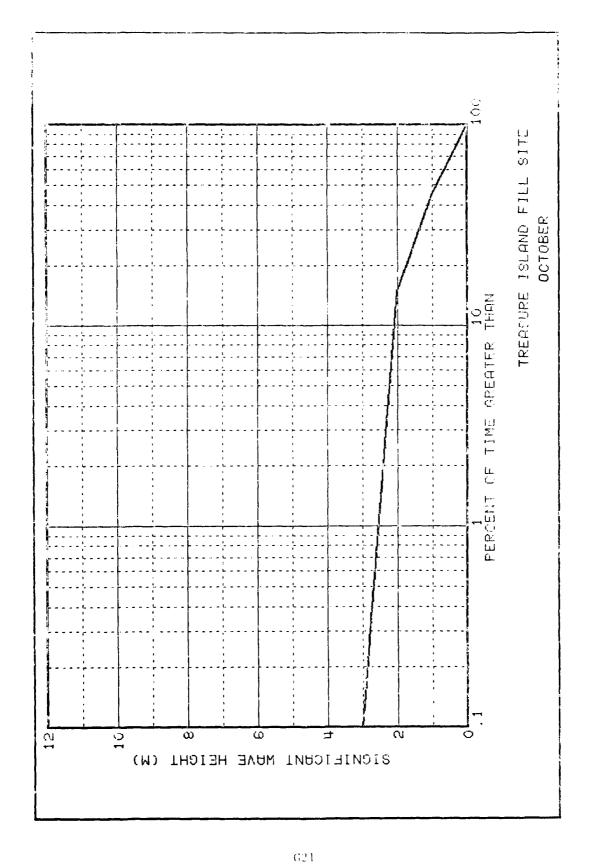
TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-13	18-20	20-22	>22	
10-00	40.26	4.02	0,49	0.00	0,55	00.0	٥,48	00.00	00.00	1.81	47,00
01-02	21.41	4.67	2,41	0,00	0.14	00.0	0.21	0.00	0.09	0.86	29.79
02-03	7,30	7.17	4.00	4.14	00.0	00.0	00.0	00.00	09.0	0.00	28.61
40 -8 0	00.00	0.00	00.00	00.0	00.00	٥٠.٥٥	0,00	00.00	00.00	00.00	() ()
04-02	00.00	00.00	00.00	00.00	00.0	00.00	00.0	00 0	00.00	00.00	00.0
05-06	00.00	00.00	00.0	00.00	00.00	00.00	00,0	00.00		00.0	క. ర
20-90	00.00	00.0	00.00	00.0	00.0	00.0	00.00	00.0	υ , ης	0010	
07~08	0,0	00.0	00.00	00.0	00.00	00.0	0.00	00.0	ે) [†] ે	c c	c,
08-ng	0.00	0.00	00.0	00.0	00.0	00.00	0.00	0.00	Ç Ç	€	
09-10	0.60	00.00	00.00	ς δ * υ	00.00	00°C	00.00	Ů0*0	Ç. Ç.	٠,٠٠ د	ć
TOTP!	000 000	15.00	6	11	ි. ව	00.0	0).0	ijυ'o	83.37 15.25 3.13 8.13 0.60 0.60 0.00 0.13 6.70 0.70		



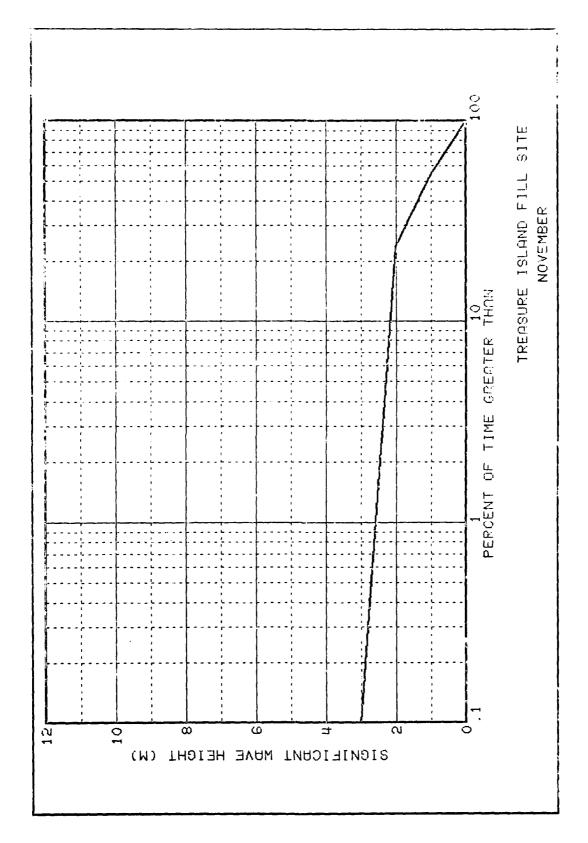
TREASURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	9-10	10-12	12-14	91-h?	16-18	18-20	20-22	>22	
10-00	45.61	7.92	00.00	00.00	00.0	00.0	00.00	00.00	0.59	0.39	55.11
01-05	14.21	12.70	0.39	0.81	00.00	00.0	0.35	00.00	0.22	0,71	86.69 88.69
05-03	4,70	3.57	3,85	1.61	00.00	00.00	94,0	0,00	0.00	0,70	14.93
#0-80	00.00	00.0	00.0	00,0	00.00	00.0	00.0	00,00	00.00	00.0	(i) (i)
04-05	00.00	00.00	00.0	00.00	0.00	00.0	٥٠٠٥		00.00	00.0	00.0
05-06	00.0	00.00	00.00	00.00	0.00	0.00	00.0	0000	00.00	0.00	65 0
06-07	0.00	0.00	00.00	0.00	0,00	0.00	00.0	0,00	00.00	2.5	
CO-20	0.00	00.00	0.05	(c.*o	00°6	(j. j.	0,10	o., o	<u>ئ</u> : ئ	후 · · · · ·	ζ
60-80	00.00	00.00	00.0	ου 'σ	00.0	ი, ბე	0,23	υ υ τυ	(E) *C	ر ج	
03-10	୦୦°୦	0,00	ā Ē	O, Q	ύο * υ	00.0	0,00	0010	U J TU	65.0	•
	610 Tigo	24,19	En Tr	13 6.3	0,00	0010 0010 8118 1818	: 0	ن. ن ري	6.60 0,P3	ξ. (.	



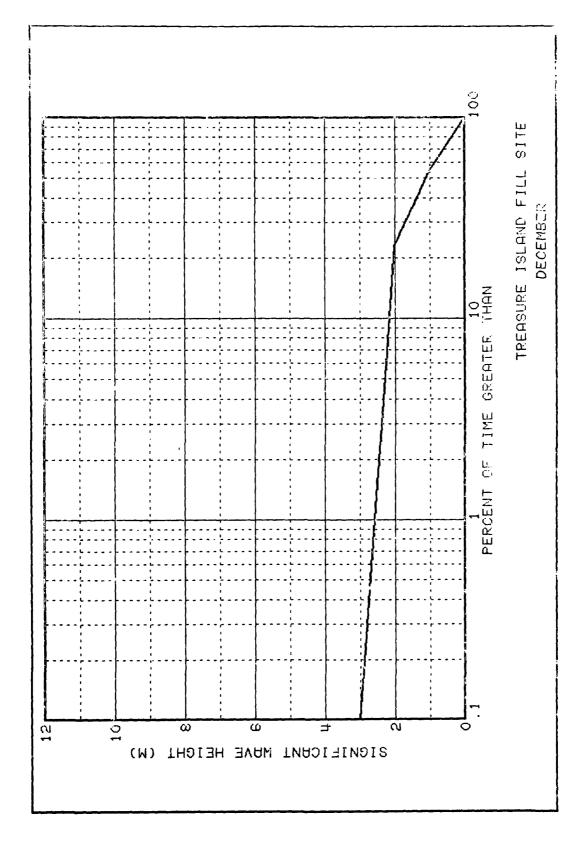
TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-8	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	× 82	
10-00	36.60	6,93	0.20	00.00	00.0	00.0	00.00	00.00	0.00	1.74	45,48
01-02	18.41	9,48	85.3	00.00	0.35	1.14	00.0	00.00	00.00	0,29	20100
02-03	3,50	7,91	1.22	9,38	1,68	88. C	00.0	00.00	00.0	0,0	28,57
40-E0	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	ე. ე.	0.0
0 1 -05	00.00	0.00	00.00	00.00	00.00	00.00	00.0	00.0	00.00	00.0	00°°
05-06	00.00	00.00	00.00	00.00	00.0	0.00	0.00	0,00	ڻ. د	00.00	₹ 6
06-07	00.00	00.00	00,0	0.00	0.00	0010	0.00	S. O	00,0	0,00	: :
07-03	00.0	0,00	00,0	00.0	9 0* 0	00°0	ن*زن	30 1 0	0.00		7
60-80	00.00	0,00	0,00	00.00	0010	00,0	0010	0.0	00.0	'≠ €	
01-60	0.00	00.00	00.00	00.00	0010	00.0	<i>့</i>) င်	0.00	υ.β. υ.		-
TOTAL	90, 61	24,82	62.5	ල ල	ල. දා	9.0	00.0	ψο'υ υ	0,00	-3	



TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	36.41	3.31	0.27	00.0	00.00	00.0	00.00	00.00	00.0	0,33	45.32
20-10	#6°C1	12,54	6. 8.	1,21	00.0	00.00	0.73	00.0	00.0	0,56	31.88
02-03	4.11	69.3	7.60	1::2	1.78	0.89	0.16	00.00	00.0	00.0	35,85
in0-80	00.00	00.00	00.00	00.00	00.00	00.0	00.0	00.00	00.00	00.0	000
04-02	00.0	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.00	0,00	
05-08	00.00	00.00	00.0	00.00		00.00	00.00	00.00	0,00	00.00	67.0
66-07	00.00	00.00	00.0	ن، ن	00.0	00.0	0.00	00.0	00.00		
62-63	60°0	0.00	0010	ξ c	0.00	ξ. τ υ	ψ <u>υ</u> 1υ	ڻ. ن	Ş	r. C	,
09-03	ن دون	0.0	ν, αλ	0)*0	00.0	0,00	(J*)	0,03	00°	2 €	
03-50	00.00	00,00	00.00	نې د ې	υὐτο	υ)*:	نځن	Caro		¢	
TOTAL	24, 47	54.47 P7.58 10.7 Cara 12.7 Cara 12.0	10,7	č e.	300	3	S	60.0	ر د د		



TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD MAYE DIRECTION = 180

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	0.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	ن 0 • دن	0.00	0.00
20-10	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0,00
02-03	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.00	00.0
40-E0	00.00	0.00	00.0	00.00	00.00		00.00	00.00	00.00	05.0	00.00
0H-05	00.00	00.00	00.00		00.00		00.00	00.00	00.00	0.00	0.00
02-06	00.00	0.00	00.00		00.0		00.00	00.00	0.00	0019	0,00
20-90	00.0	0.00	00.0		00.00			00.00	00.00	0010	0,00
07-08	00.00	00.0	016	ن دون	00.0	0.00		00.00	0.00	Ů.,	ξξ, 1 .
08-03	0.00	00.00	00.0	00.0	0.00	00,0		00.0	00.00	∂0 * 0	€ ₹
03-10	00.0	0.30	00.00	0010	00.0	00.0	0,00	00.0	00.0	00.0	Q (1) (1)
TOTAL	00.0	00.0	Ç Ç	00.00 00.00		ο, (3)	00.0		د د	UU Č	

TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 210

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	14-1B	16-18	18-20	20-22	×25	
00-01	9.74	1.00	0.02	0.05	0.09	00.00	0.04	0,00	0,15	0.48	11,62
91-05	7.66	2.83	0,67	0.15	0.02	0.03	0.02	00.00	0.07	0.30	11.75
02-03	н9∙н	1.56	0.99	0,52	0.00	0.02	00.00	0.00	0.00	0.00	7.74
HO-EO	00.00	0.00	00.00	0.00	00.0	00.00	0.00	00.00	0.00	0.00	0.00
90-40	0.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00	0.00	00.00	0.00
05-06	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00	00.00	0.00
06-07	00.00	0.00	0.00	00.00	00.00	00.00	0.00	0.00	00.00	00.00	00.0
07-08	00.00	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.0	00.00	0.00
€ ₩-€0	00.0	00.00	00.00	0.00	0.00	00.00	00.00	0.00	00.0	00.00	00.0
03-10	00.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00	0.00	00.0	0.00
TOTAL	22,04	5,40	1,72	0.72	0.11	90.0	90.0	00.0	0.22	0.78	

11

CUMULATIVE SER / SWELL FREQUENCIES OF NAVE HEIGHT AND PERIOD TREASURE ISLAND FILL SITE WAVE DIRECTION = 240

HEIGHT (M)				-	PERIOD (SEC)	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	7.75	0,u2	0.11	0,05	00.00	00.00	0.00	0.00	00.00	0.23	8,57
01-05	2,95	1.13	0.50	0,05	00.00	0.03	0.02	0.00	00.00	0.10	4,79
02-03	0.26	0.51	0.22		00,0		0,03	00.00	0.00	00.00	1.28
03-04	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.0	00.00	0,00
04-05	00.00		00.00	00.00	00.0	00.0	0.00	00.00	0.00	00.00	
05-06	00.00	00.00	00.00	00.00	0,00	00.00	0.00	00.00	00.00	00.00	0.00
08-07	00.0	00.00	0.00	00.00	00,00	00.0	00.00	00.0	0.00	0,00	ن ورن
07-08	00.0	00.0	00.00	0,00	0,00	00.0	00.00	0,00	00.0	Q. P.	c.
60-80	0.00	00.0	06.9	0°°€	0, 00 0, 00	00°u	00 . c		ن دن	() () ()	
09-10	0,00	0.00	0,0	00.0	0,00	00.0	00,00	ςύ¹υ	ું	ာ င်	Ĉ
TOTEL	10.08	2,06	#8 * ○	0,23	٥٥٠٠	9010	0°00	ڻ د من	Ç∂.¢	ः ट	

TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD NAVE DIRECTION = 270

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-18	16-18	18-20	20-25	>25	
10-00	7.96	0.49	0.24	0.04	00.00	0.04	00.00	00.00	00.00	0.22	8, 93
01-05	5.66	1.97	0.28	0.04	0.03	0.04	00.00	00.00	0.01	0,18	9,20
02-03	4.23	3,16	1,49	0,75	0.30	h::0	00.00	0.00	0.05	0.21	10.31
40-E0	00.00		00.0	00.00	0.00	00.00	0.00	00.00	00.00	00.0	0.00
04-02	00.0	00.00	00.00	00.0	00.00	0.00	00.00	00.0	00.00	00.00	0.00
05-05	00.00	00.0	00.0	00.0	00.00	00.00	00.0	0.00	00.00	0,00	ده.،
05-07	00.00	00.0	00.00	υψ·0	00.0	0.00	0.00	00.00	00.00	60.00	0010
60-25	0.00	00.0	(0,0)	00.00	00.00	00.00	್ಯಾ	0.00		00.0	
€6-30	0.00	00.0	60.0	00.0	00.0		30.0	ù, 00	0.00	0.00	 (
01-02	୍ ୬୦	0.00		00.00	00.00		ύο ° ο	00.0	00.0	ं	, . ,
Thirt	19,91	60.0		\$0.0 \$0.0		0,00	00.0	00.0	0.00	#U*c	

TREASURE ISLAND FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MAVE DIRECTION = 300

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-5	8-8	3-10	10-12	12-14	@1-h1	16-18	18-20	20-22	>22	
10-00	14,33	3,15	0.34	0.07	00.00	00.00	0,00	0.11	0.10	0.51	18.65
50-10	0.70	2.78	1.19	0.15	00.00	0.00	0,05	00.00	0.01	0.11	8,00
62-03	0.06	0.36	0.95	0,45	0.11	0.13	0.01	00.00	00.0	ಭಿ. ≎	80.8
40-60	00.0	00.00	00.00	00.00	0,00	00.0	0.30	00.00	00.0	00.00	00.00
04-05	00.0	00.00	0.00	00.0	0.00	00.0	00.00	00.00	00.00	0),0	00.0
05-06	00.0	00.0	6 0	00.00	0,00	0.00	0.0	00.0	00.0	ξ. ψ	0,0
20-90	0.03	00.6	00.0	00.00	00.0	00.00	0.00	00.0	00.0	() C	OF OUR
07-08	00.0	0.00	00.0	0.00	v0.0	0,000	9. to	ن ' نان	الديث المراد	C)*¢	r
©∪-30	00.00	0.00	CO C	€ €.	0.00	5 0 *0	ÛV.^	0,00	garty.	ټار ن	¢
03-10	00.00	00.0	9,50	ς) 'ο	00.0	00,10	ن د ل	00.0	ψ 6 *5	ć, ć	
TOTEL	10.00	(c)		6010		67.4		:-: c	٠.٠ ت ن		

TREASURE ISLAND FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 380

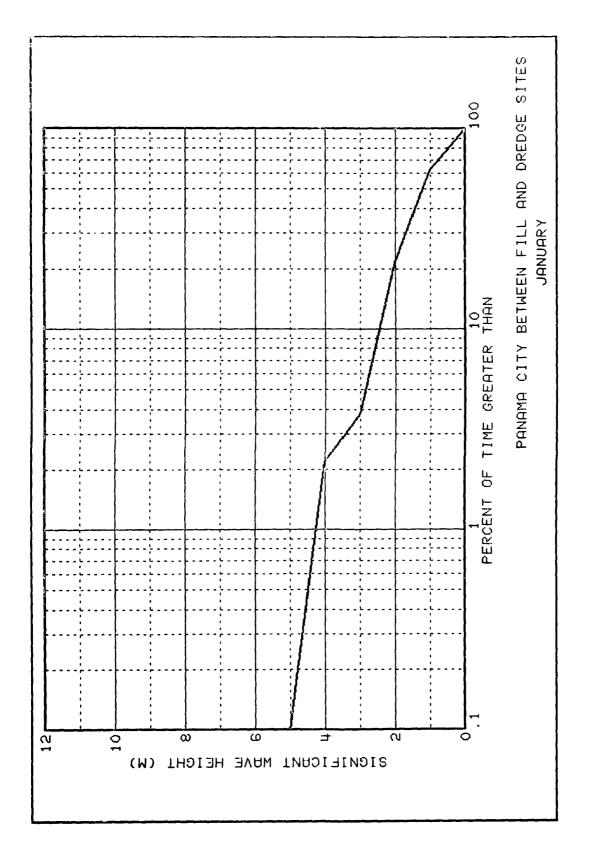
HEIGHT (M)					PER I OD	(SEC)					TOTAL
	<5-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	× 22	
10-00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	00.00
50-10	00.00	00.0	٥٠٠٥	00.00	00.00	00.0	00.00	00.00	0.00	00.00	00.00
62-63	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
03-01	00.00	00.00	00.0	00.00	0.00	0.00	00.00	0.00	00.00	00.00	00.00
04-05	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.0	0016
05-06		0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00
08-07		0.00		0.00	00.00		00.00		00.00	0.00	00.0
90-20	0.00	00.0	0.00	00.00	00.00	0.00	00.0		0010	00.00	۲ ۵ ۷
60-50	0010	0.00	0,00	00,0	00.00		0.00	0.00	υρ*υ	30.5	© .:
09-10	υο τ ο	00.0	0.0	00.00	00.0	0010	00.0	00.00	0 000	Ċ	ψ. (1)
19101	00.00	0	00.0	0.00		00.0	00.0	0.00	00.0	ن. ن	

APPENDIX H: AVERAGE WAVE CLIMATE AT PANAMA CITY, FLA.

- - a. Tabulations of monthly percent occurrence of wave-height/ period combinations.
 - \underline{b} . Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

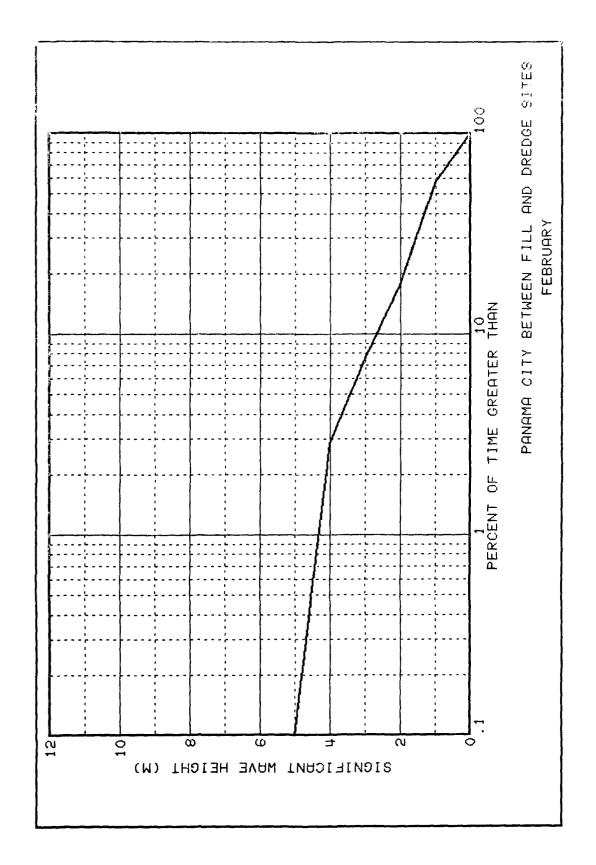
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	× 22	
10-00	26,58	90.9	00.00	00.0	2,94	0.00	00.00	00.00	00.00	2,03	37.61
01-02	33,12	4,42	0.51	00.00	98.1	00.00	00.0	00.00	0.00	0.91	40.82
60-50	7,94	3.81	2,43	00.00	1.08	00.0	00.00	0.00	00.00	2,52	17.79
±0-€0	0.00	0.45	0.75	00.00	00.00	00.00	00.00	00.00	00.00	0.42	1.59
04-05	00.00	00.00	2.19	00.00	00.0	00.0	0.00	0.00	00.00	00.0	2.19
02-06	00.00		00.00	00.00	00.00	0.00	0.00	0.00	00.00	00.00	00.00
06-07	00.00		00.00	0.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.0	00.00	0.00	0,00
60-80	00.00	00.00	00.00	00.00	00.0	00.0	0,00	0.00	00.00	0.00	0.00
09-10	00.0	00.00	00.00	0.00	00.0	0.00		0,00	00.0	0.00	υ, <u>ભ</u>
TOTAL	67.65	14.71	5.63	0,00	к 8	00,0		0,00	0.00	00 00	



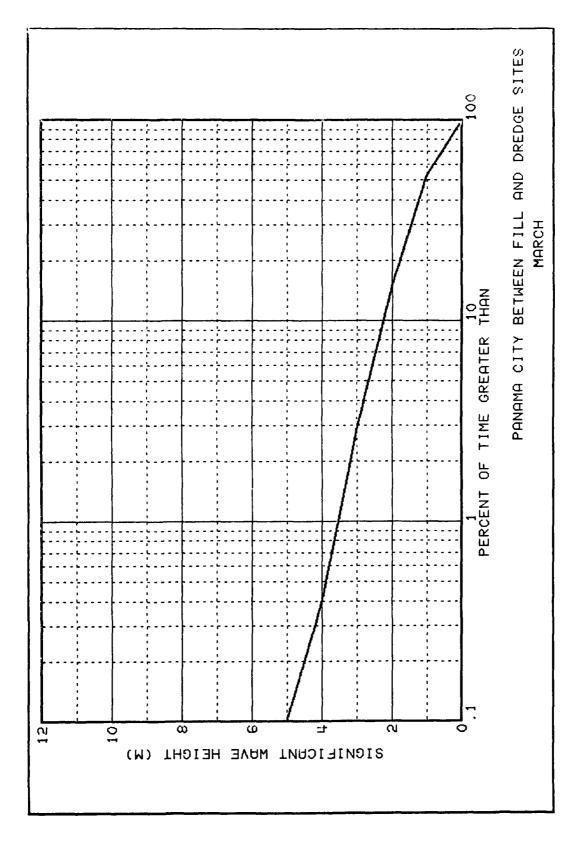
PRINAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-15	16-18	18-20	20-22	×22	
10-00	40,31	2.72	0,00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	43.03
01-02	36,53	1.96	0,78	00.0	00.00		00.00	00.00	0.00	0.00	39.27
02-03	3,16	4,22	2,08	0,65	00.00	00.00	00.00	00.00	00.00	0.00	10.10
40-60	00.00	2,52	00.00	8.21	00.00	00.0	00.00	00.00	00.00	00.00	4.73
04-05	00.00	00.00	ଓ ଓ	0.00	00.00	00.00	00.00	00.00	00.00	00.00	3,86
05-06	00.00	00.00	00.0	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.0
06-07	00.00	0.00	00.00	0,00		0.00	00.00	00.00	00.00	0.00	0.00
07-08		00.00				00.00	00.00	0,00	00.00	00.0	0,00
60-80	00.00	00.00	00.00			00.00	00.00	00.00	0.00	00.00	00.0
09-10	00.00	00.00	00.0	0,0		00.00	00.0	00.0	00.0	ύ01 ₀	0,00
TOTAL	80,09	11.43	5,71			0,00	0,00	0,00	0,00	ပ္ပ (၁	



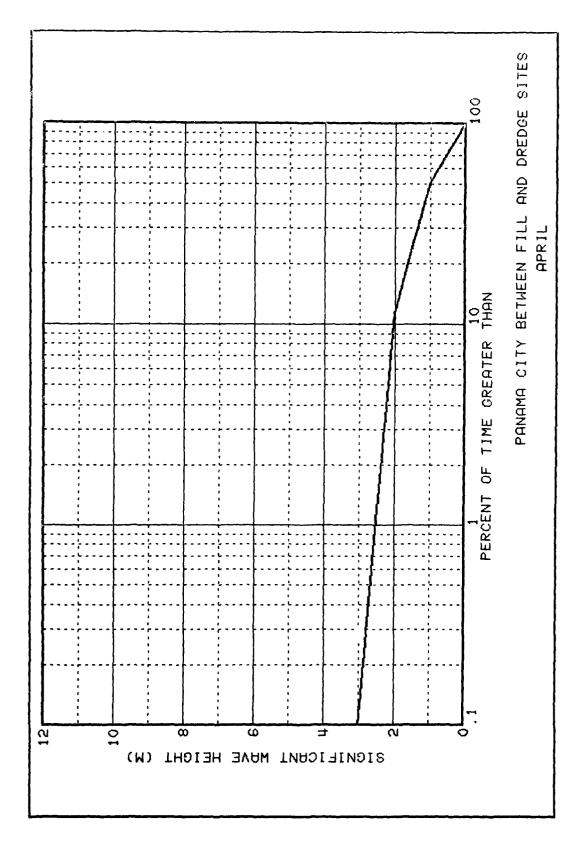
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-18	81-91	18-20	20-22	× 22	
10-00	44.51	2,40	0.33	00.00	00.00	00.00	00.00	00.00	0.00	0.00	47,24
01-02	26.77	7.20	3.73	0,31	0,00	00.0	00.00	0.00	00.00	00.00	38.01
02-03	2,18	4,69	2,06	1,73	00.00	1.24	00.00	00.00	00.00	00.00	11.91
99-04	00.00	1,65	0.00	00.00	00.00	08.0	0.00	00.0	00.00	00.0	2,45
04-05		0.39	00.00	00.00	00.00	00.00	0.00	0,00	0.00	00.00	0.39
02-06	00.00	00.00		00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.0		00.00	0.00	0.00	0.00	00.00	0.00	00.00
07-08	00.00		0,00	0,00	00.00	0.00	00.00	0.00	00.0	0.00	00.0
60-80	00.00	00.0	00.00	00.0	00.00	00.00	0.00	0.00	00.0		00.0
01-60	00.00	00.00	00.0	0.00	ου·υ	υ , 00	00.00	00.0	00.00	00.0	
TOTAL	73,47	16.33	ن ن	io ei	0.00	10°2	0.00	00.00	0.00	00.0	



PRINGMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	91-41	16-18	18-20	20-22	×25	
00-01	44,71	2.50	0,22	00.00	00.00	00.00	00.0	0.00	00.00	1.98	49.41
50~10	25.91	9.59	3,15	00.00	00.00	0.00	00.0	00.00	00.00	0.52	39,17
02-03	1.88	5.41	t, 13	0.00	0.00	00.00	00.00	00.00	00.00	00.0	11.43
h0-e0	00.00	00.00	00,00	00.0	00.0	00.00	0.00	0.00	00.00	0.00	00.00
04-02	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.0	00.0
02-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00
06-07	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.0	00.00	0.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00	0.00	00.0
60-80	00.00	00.00	00.00	00.00	0,03	00.00	00.00	00.00	00.00	0.00	00.00
01-60	00.00	0010	00.00	00.0	00.00	00.0	0.00	0°.00	00.00	0,00	0.00
TOTAL	72,50	17.50	7.50	00.0	00.00	0,0	00.0	00.0	00.0	2.50	

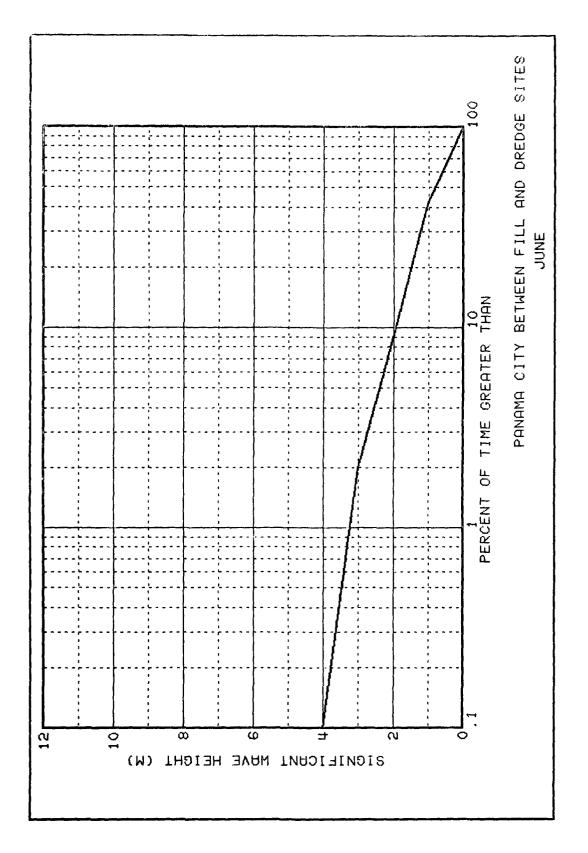


PRINAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA \prime SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)				_	PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-18	16-18	18-20	20-22	>22	
10-00	62.14	3,48	6,43	0.00	00.0	00.00	00.00	00.00	1.46	9,29	70.74
01-02	10.93	6.00	3,42	00.00	0.00	00.00	00.00	00.00	0.47	0.61	21,43
02-03	00.00	5,90	0.00	00.00	00.00	00.0	00.00	00.00	0.00	00.00	5.90
99-04	0.00	0.67	00.0	0.00	00.00	00.00	00.0	00.00	00.00	0.00	0.67
04-05	00.00	1.25	0.00	00.0	0.00	00.0	00.00		00.00		1.25
90-50	0,00	0.00	00.00	00.00	00.0	00.00	00.00		00.00	0.00	00.00
06-07	00.00	00.00	00.00	00.00	00.0	00.00	00.00		00.00		0.00
07-08	00.00	0.00	00.00	0.00	0.00	00.00		00.00	0.00	00.00	0.00
60-80	00.00	00.00	00.00	00.00		0.00		00.00	00.0	0.00	00.00
09-10	00.00	0.00	00.0	00.00			00.00	00.00	00.00	00.00	0.00
TOTAL	73.08	17.31	60 60 60	0,00	00.00	0,00	0,00	0.00	1.92	3,85	

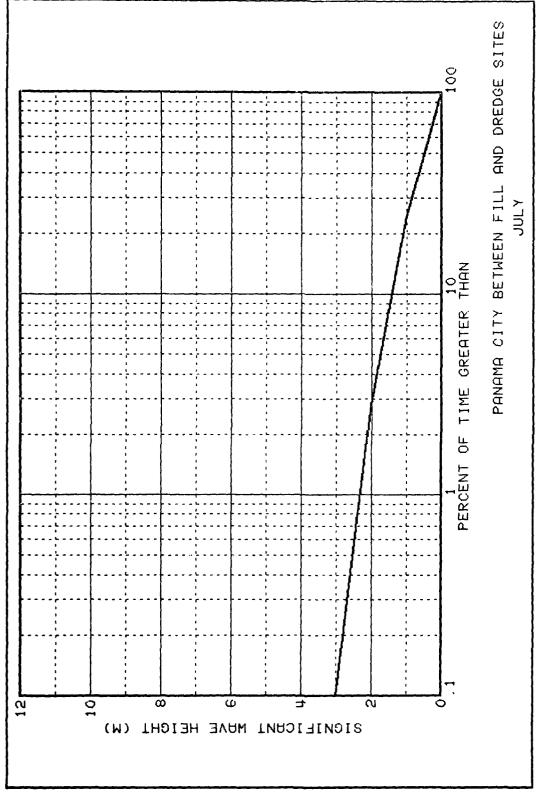
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)					PER I OD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	91-h?	16-18	18-20	20-22	\ \ \ \ \	
10-00	57.26	0.37	0.22	00.0	00.00	0.00	0.00	0.00	00.00	0°.0	57,85
50-10	21.63	7.73	2.64	1,13	00.00	00.00	0.00	0.00	00.00	0.00	33.20
02-03	1.11	5.61	0.00	0.24	00.0	00.00	00.00	0.00	00.00	0.00	6.36
HO-60	00.00	1,99	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	1.99
04-02	00.00	00.00	0.00	00.00	00.00	00.0	00.00	00.00	0.00	0.00	00.00
05-06	00.00	00.00	00.00	0.00	00.00	0.00	00.00	00.00	00.0	00.00	00.0
20-90	0.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00
07-03	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	00.0
60-80	00.0	00.00	00.00	0,00	00.00	00.00	0.00	00.00	0.00	00.00	0.00
01-60	00.00	00.00	00.00		00.00	00.00	00.0	0.00	υ ῦ* ο	00.00	0.00
TOTA!	80.00	15.71	2.86	Ch.1	00'0	00.00	0.00	00.0	0.00	00.0	



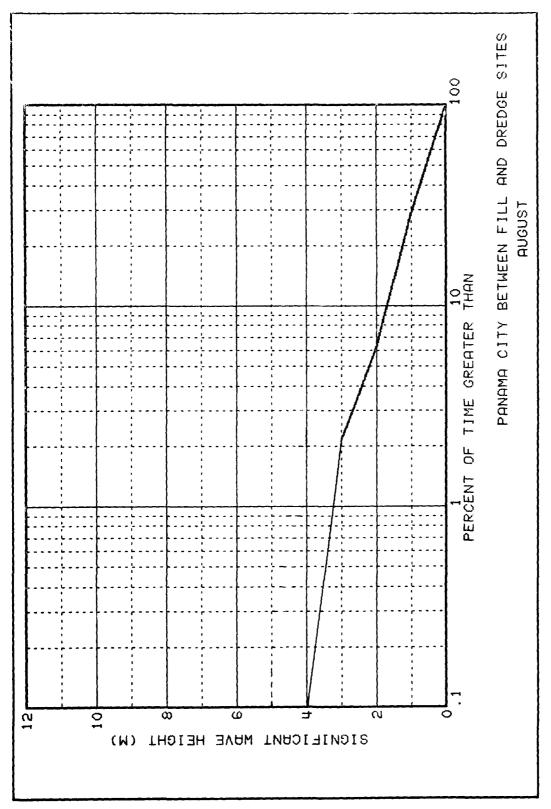
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND FERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTPL
	45-6	8-9	8-10	10-12	H1-21	14-16	16-18	18-20	20-22	×22	
10-00	71.52	68.0	1.40	00.00	00.0	00.00	0,00	00.00	1,00	1,02	75,84
01-02	17,68	2,14	1.07		00.00	0.00	00.00	00.00	0.23	0.21	21.33
02-03	0.93		00.00	00.00		00.0	00.00	0.00	00.00	0.00	2,83
40-E0	0.00		00.00	0.00	00.00	00.0	00.0	0.00	0.00	0.00	00.00
0n-02	00.00		00.0		00.00	0.00	0.00	0.00	00.00	00.00	0.00
02-08	0.00	00.00	00.00		0.00	00.00	00.00	0,00	00.00	00.00	00.00
20-90	00.00		00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.00
07-08	00.00	00.00	00.00	00.00	00.0	00.00	00.00		00.00	00.00	00.0
60-80	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00,0	0,00
01-60	00.00	00.0	00.00	00.0	0,00	00.00	00.00	0.00	00.00	00.00	0.00
TOTAL	90,13	4.94	2,47	00.00	00.0	00.00	00.0	00.0	1,23	1.83	



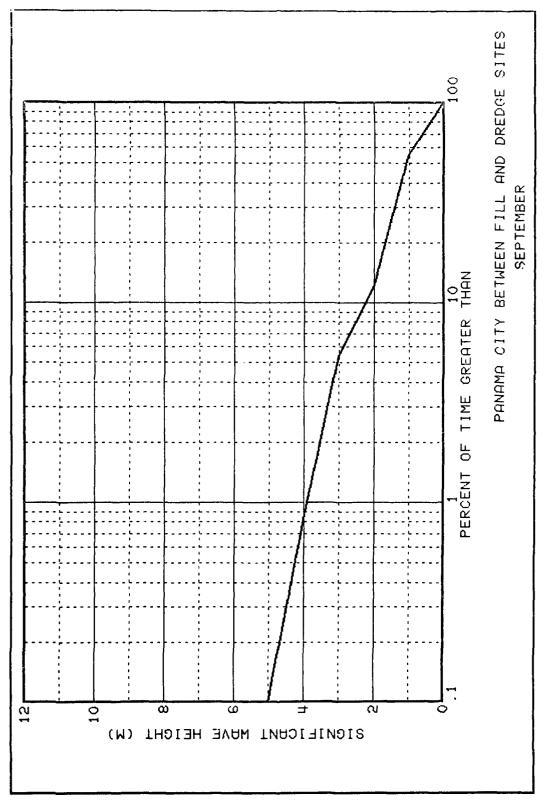
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	60.15	3.97	0.00	00.0	00.00	00.00	00.00	5.23	2.09	0.00	71.43
90-10	17.40	3.77	0.00	00.00	00.00	00.00	00.00	1,16	0.04	00.00	22.37
02-03	3.31	0.77	00.00	00.00		00.00	00.00	0.00	00.00	0.00	4.08
40-E0	00.00	0.00	0.0	0.00		00.0		00.00	00.00	00.00	00.0
04-05	00.00	00.00	0.00	2.13	00.00	00.00	0.00	0.00	00.00	00.00	2.13
02-06	00.00	00.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00	00.0	0.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00
07-08		00.00		00.00	00.0	00.00	00.00	0.00	00.00	0.00	00.00
60-80		0.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00	0,00	00.00
01-60	00.00		0.00	00.0		0.00	00.0	0.00	00.00	0,00	0.00
TOTRL	80,85	3,51	00.00	2,13		0.00	0.00	6,38	2.13	0.00	



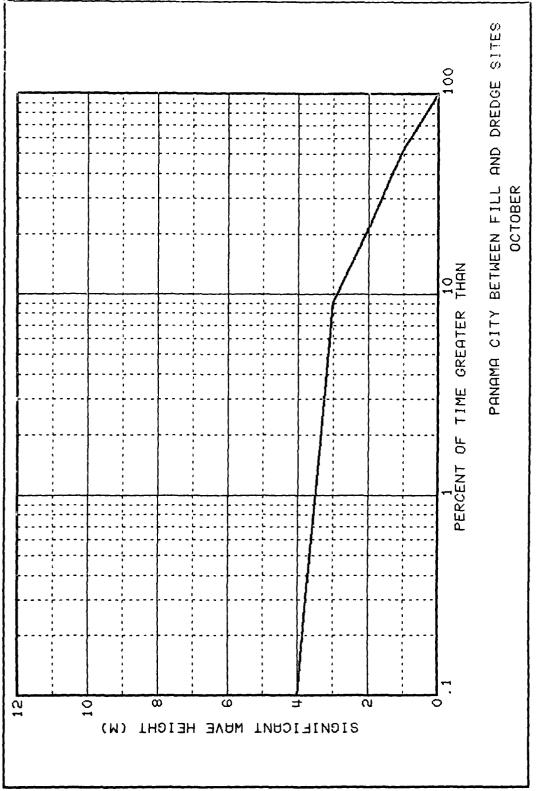
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR SEPTEMBER

(M) thotan					לטבט עטומבי	(350)					TOTRE
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	42,78	1.46	0,12	0.00	00.00	0.00		00.00	0.00	00.00	44.36
20-10	33.13	7.79	2.64	00.00	0.00	00.0	00.00	0.00	00.00	00.00	43.62
02-03	1.05	1.92	9,00	0.61	00.00	00.0	00.00	00.00	00.00	0,00	6.58
†0 -€0	00.00	1.00	1.00	2.62	0.00	00.0	00.00	00.00	00.00	0.00	4,62
04-05	00.00	00.00	00.00	0.83	00.0	00.00	00.00	00.00	00.00	0.00	0,83
92-06	00.00	00.00	00.00	00.0	00.00	00.0	0.00		00.00	_	0.00
06-07	00.00	00.0	00.00	00.0	00.00	00.0	0.00		00.00		0,00
07-08	00.00		00.00		00.0		0.00	00.00	00.00	00.00	0,00
08-09	00.00		00.00	00.00	00.0		00.0	00.0	00.0	0,00	0.00
01-60	00.0	00.0	00.00	0,00	0,0		0.00	00.00	00.00	0,00	0.00
TOTAL	77.03	12,16	6.75	೨೦*ಗ	00.00	ΰυ 1 0	00.00	00.00	00.00	00.00	



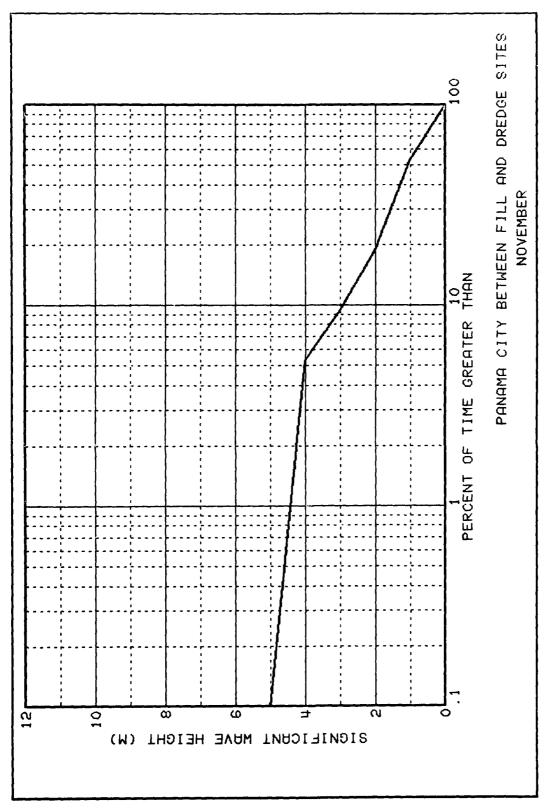
PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-B	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	× 22	
10-00	47.39	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	47,39
50-10	31,49	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	31.49
02-03	4,46	7,65	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	12,11
HO-EU	00.00	9,02	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	9,02
04-05	00.00	00.00	00.00	0.00	00.0	00.00		00.00	00.00	00.00	0.00
05-06	00.00	00.00	00.00	00.00	00.00	00.00		00.00		00.0	0.00
06-07	00.00	00.00	0.00	00.00	00.00	00.00		00.00	00.00	00.00	0.00
07-08	00.00	0.00	00.00	00.00	0.00	00.0		0.00	00.00	0°,00	0,00
60-80	00.00	00.00	00.00	00.00		00.00	00.00	00.0	00.00	00.00	0.00
09-10	00.00	00.00	00.00	00.00		00.00	0.00	00.0	0.00	00.00	0.00
TOTAL	89.83	16.67	00.0	0.00	00.0	φ . ω	00.0	00.00	0,00	0,00	



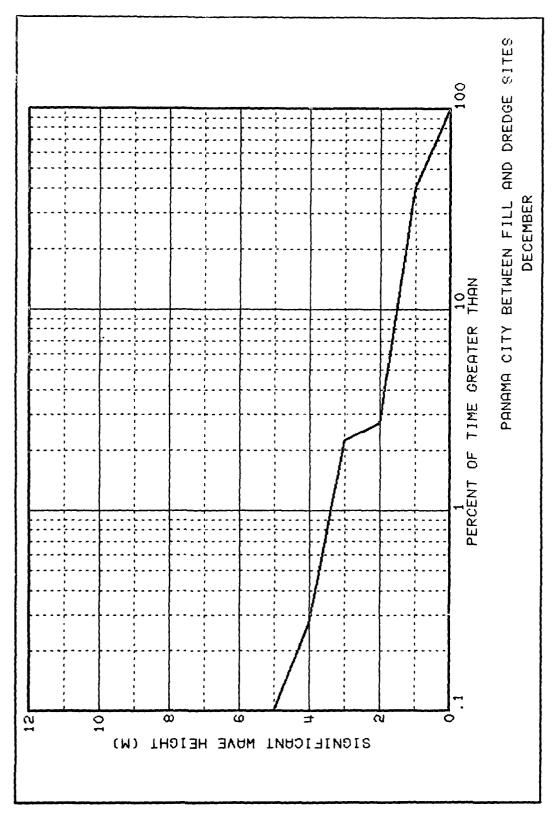
PRINAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	41,72	0.32	00.0	t.63	00.00	0.00	00,00	0.00	0.00	0.00	46.67
01-02	21,24	9.78	0.64	2,78	0.00	0.00	0.00	00.00	00.00	0.00	34,45
02-03	00.00	6,41	30.6	00.00	00.00	00.00		0.00	00.00	00.00	9,47
40-60	00.00	4,07	0.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00	4.07
04-02	00.00	5,34	00.00		00.00	00.00	00.00	00.00	00.00	0.00	5,34
90-20	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
07-08	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0,00
09-10	0.00	00.00	00.00	00.00	00.00	00.0	0.00	00.00	00.00	00.00	0.00
TOTAL	62,36	25,93	3.70	7,41	00.0	00.0	00.0	00.0	0.00	0.00	



PRNAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-8	8-6	3-10	21-01	12-14	14-16	16-18	18-20	20-22	>25	
00-01	48.15	7,62	00.00	0.00	00.00	00.00	0.00	00.00	00.00	4.10	59.87
50-10	30.23	5,89	0.00	00.00	0.00	00.00	00.00	0.00	0.00	1.31	37,43
02-03	00.00	0.47	00.00	00.00		00.00		00.00	00.00	0.00	0.47
40-E0	00.00	1.98	00.00	0.00	00.0	00.00	00.00	00.00	00.00	0.00	1,95
04-05	00.0	0.27	0,00	0.00	00.00	00.00		00.00	00.00	0.00	0.27
02-06	00.0	00.00	00.00	0.00	00.00	00.00		0.00		00.00	00.00
06-07	00.00	00.00	0.00	00.00	00.00	0.00	0.00	0.00	00.00	0.00	00.00
07-08	00.00	00.00	00.00	00.00	00.00	00.00	00.0	0.00	00.00	0.00	00.0
60-80	00.0	00.00	00.00	0,00	00.0	00.00	00.0	00.00	00.0	0.00	٥٠٠٥
09-10	00.00	00.00	00.0	00.0	0.00	00.00	00.00	0.00	00.00	0.00	ύ0°0
TOTAL	73.33	16,22	0,00	0.00	00.00	00.00	00.0	0.00	00.00	5,40	



PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD MAYE DIRECTION = 150

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-6	8-8	01-8	10-12	12-14		16-18	18-20	20-22	×22	
00-01	12,45	00.00	00.00		00.00	00.0	00.00	00.00	0.00	0.00	12,45
01-02	6.07	00.00	00.00		0.00	00.00	00.00	00.00	00.00	00.00	6.07
02-03	0,25	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0,25
40-e0	0.00	00.00	00.00	00.00	00.0	00.00	00.00	00,00	0.00	00.00	00.00
04-05	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00
05-06	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00
20-90	0.00		00.00		0.00	00.00	00.00	00.00	0.00	0:00	0.00
07-08	00.00	00.00	00.0	00.00	0,00	0.00	00.00	0.00	00.00	0.00	0.00
60-80	00.00	00.00	00.00	00.00	0.00	0.00	00.00	00.00	0.00	0.00	0.00
01-60	٥٠٠	00.0	00.00	0.00	0,00	0.00		0.00	0.00	00.0	٥. د
TOTAL	18,77	00.00	00.00	00.00	00.0	0.00	0.00	00.00	0,00	00.00	

PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 180

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	45-6	8	8-10	10-12	12-14	91-41	16-18	18-20	20-22	\ 55	
10-00	7,23	98.0	0,2¥	00.00	00.00	00.00	0.00	0.28	0.14	0.29	9,16
01-02	5,40	3.32	0,92	0,03		00.00	0.00	0.07	0.03	90.0	9,84
02-03	0.53	2.05		0.23		0,11	00.00	0.00	0.00		3.70
03-0H	00.00	1.02	0,13	h€.0	00.00	0.07	00.00	0.00	00.00	00.00	1.56
04-05	00.00	0.37	0,18	0.28	00.00	0.00	0.00	0.00	00.00	00.0	0.83
02-08	00.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00	00.00	00.00	0:00
20-90	0.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	00.00	0.00
07-08	0.00	00.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00	0.00	00.00
08-03	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00
00-10	00.00	00.00	00.00	0.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00
TOTAL	13,15	7.72	શે ત	0.83	00.00	0.18	00.00	0.35	0.18	0.35	

PRNAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 210

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	8.46	0.25	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.24	8,96
01-02	4,56	0.57	0.12	0.15	0.00	00.00	00.00	0.00	0.00	0.11	5.50
02-03	0.14	0.61	0,06	0,03	0,00	00.00	00.00	00.0	0.00	00.00	0.83
40-80	00.00	0.13		00.00		00.00	00.00	00.00	0.00	00.00	0.13
04-05	00.00	50.0		00.00		00.00	00.00	00.00	00.00		0.02
9000	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00		0.00
06-07	00.00	00.00	00.00	0.00	00.00	00.0	00.00	00.00	0.00		0,00
07-08	00.00	00.00	00.00	00.0	00.00	00.00	00.0	00.0	0.00		0,00
08-03	00.00	0.00	00.00		00.00		00.00	00.00	0.00	0.00	0.00
01-60	00.00	00.00	00.0		00.00	0,0	00.00		00.00	00°0	0°°°
TOTAL	13,16	1.58	0.18	0,18	00.0		00.0		00.0	0,35	

PRNAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE FOR A SMELL FREQUENCIES OF MAYE HEIGHT AND PERIOD
MAYE DIRECTION = 240

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	9-S>	6. 6.	077	10-18	ni-51	16-15	16-13	18-20	20-22	>22	
00-00	7.68	<i>G</i> €	: 3	è	00.0	00.0	0.00	0,15	10°0	0,43	60
0)	18.3	; ;	· ·	2 6	ပ် ငံ	00.0	Ö.0	0 0 0	150°0	O) O	4.76
30-30	\$. •	ت ن ن	₩ ₩ Φ	-8°0	001C	00.0	3·3	0.00	00.00	0,15	1.63
#¿-; ɔ	\(\frac{1}{2}\) \(\frac{1}{2}\)	 	÷ 6.0	11.0	00.00	0.00	00.00	00.00	00.0	0.03	0.0
\$0.00	ွှင့်		0.13	0010	00.0	00.0	٤	00.00	00.0	00.00	0.10
W C	00.0	0.0	00.0	00.0	0.00	00.00	5	300	0.00	00.0	0.00
(5) (1) (2) (2)	10.0	0.5	50.5	0.00	00'0	ñ.00	00.0	00.00	00.00	0.00	€0°0
100 of 10	0.00		0000	00°0	00.0		00°0	00.0	00.0	0.00	i V
\$0.40C	50°0	€ €	66.0	€. €	€ (°	3:0	٠ ٥	G, 9	00.00	00.00	<u>.</u> د
0 1	00.0	•		** *	ij Ū *.	0.00				<i>C C C C C C C C C C</i>	3013
1 1	10.00			: :	Ç	0000 0000	υ , ο υ	077	Ь. В	ř.	

PANAMA CITY BETWEEN FILL AND DREDGE SITES CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD

WAYE DIRECTION = 270

HEIGHT (M)					PERICO (SEC)	(SEC)					TOTAL
	45-6	8-8	3-10	10-12	41-51	14-16	16-18	18-20	20-22	>22	
10-00	7,72	0,45	0.03	0.82	0.18	00.00	0.00	00.00		00.0	e.53
01-02	88 2	0.61	0.20	0.13	0.11	00.00	0.00	00.00	0.00	00.00	3.94
02-03	0.27	0.17	0.12	0.00	90.0	00.0	0.00	00.00	0.00	0.00	0.63
40-E0	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00
94-05	00.00	00.00	00.00	00.00	00.00	00.00	00,00	0.00	0.00	00.00	0.00
02-06	00.00	00.00	00.00	00.0	0.00	00.00	00.00	0.00	0.00	0.00	0.00
20-90	0.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00
07-08	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	٥,٠
60-80	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	o, co
01-60	00.00	00.00	00,0	00.0	00.00	00.00	00.00	00.0	00.0	0.00	0.00
TOTAL	10,33	1.23	0,05	0.05	0.35	00.00	0.00	00.0	0.00	0.00	

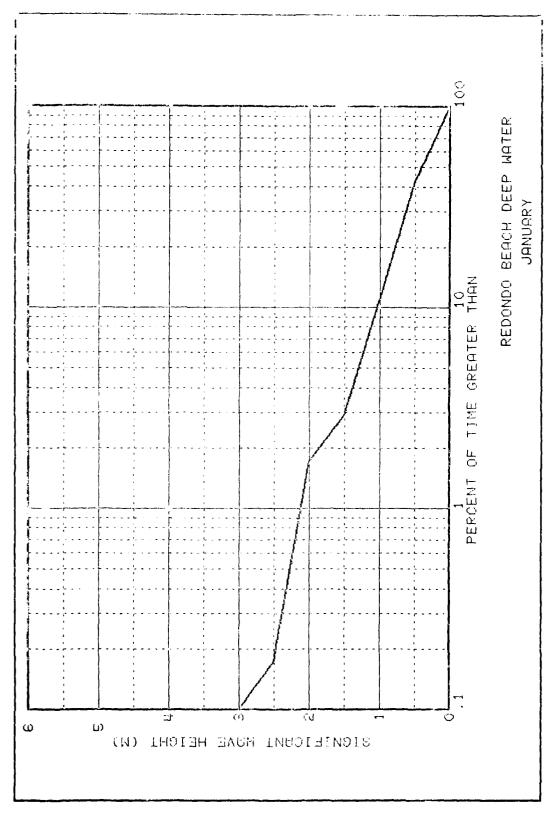
ALCONOMINATOR LINES OF THE BROWNS OF THE STREET

APPENDIX I: AVERAGE WAVE CLIMATE AT REDONDO BEACH, CALIF.

- 1. Appendix I contains two sets of the following information. One set is for the sand borrow area at Redor to Beach, Calif., (deep water), and the other is for the fill area:
 - a. Tabulations of monthly percent occurrence of wave-height/period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

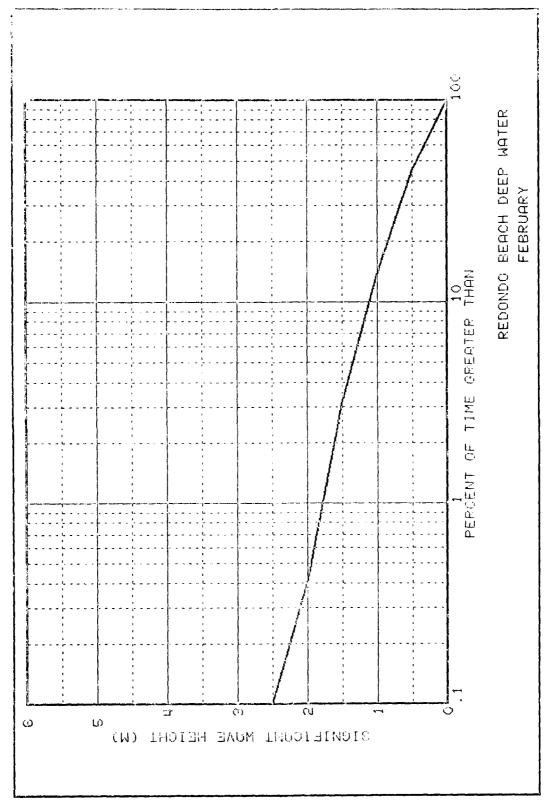
NEDONDO BERCH DEEP WRITER CUMULATIVE SER / SWELL FREQUENCIES OF WRITE HEIGHT AND PERIOD FOR JANURRY

	00.0	8.69	18,22	30.48	18.9	6.03	12.44	16.37	1979
0.00	0.00	00.00	00.0	0.00	0.00	00.00	00.00	00.0	3.0-3.5
0.17	00.00	00.00	00.0	0.00	00.0	0.17	00.0	0.00	6.6-6.6
1.83	00.00	0.00	00.0	00.00	00.0	0.52	1,03	00.00	8.0-6.9
1,20	00.00	00.00	00.00	00.00	0.17	00.0	1,03	00.0	1.5-2.0
8,01	00.0	00.0	00.00	00.00	00.00	1,36	୬,୯	9.59	1,0-1,5
31.17	00.00	3.07	4.77	4.77	2.25	1.70	i,61	10.05	0.5-1.0
57.80	0.00	5,62	94.61	25,71	4.42	3,24	2.72	2.72	0.0-0.5
	> 18	16-18	14-16	12-14	10-12	8-10	හ ග	8-H>	
TOTAL				(SEC)	PERIOD			·	HEIGHT (M)



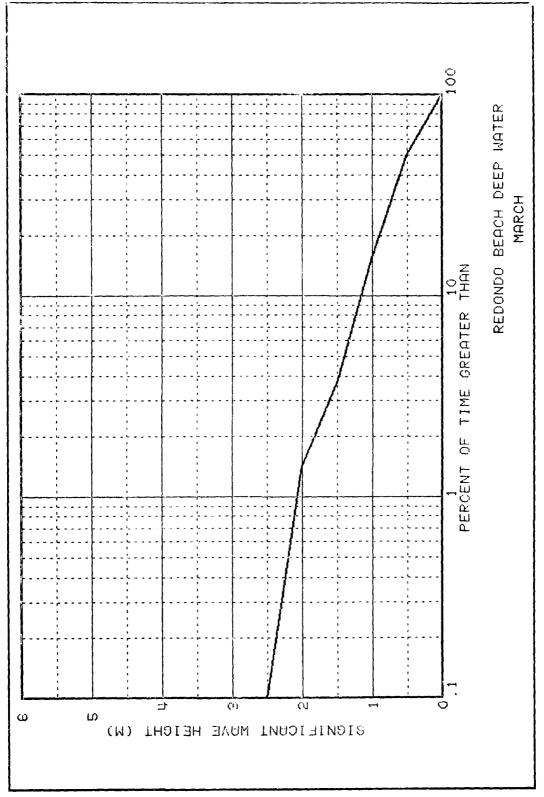
REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)				PERIOD	(SFC)				TOTAL
	9-h>	8-9	8-10	10-12	12-14	91-41	81-91	81¢	
0.0-0.5	0.78	4.68	1.36	2.07	26.90	11.31	5.46	0.00	55.56
0.5-1.0	11,88	2,52	2,74	2,15	4,29	6.04	1.18	0.00	30.80
1.0-1.5	3.30	6.04	1.18	00.00	0.00	00.00	0,00	00.00	10.52
1.5-2.0	0,40	1.94	0.20	00.00	0.20	00.00	00.00	00.00	2.74
2.0-2.5	0.20	0.20	00.00	00.00	00.0	00.00	00.00	0.00	04.0
2.5-3.0	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.00	00.00
3.0-3.5	00.00	00.0	00.00	0.00	00.00	0.00	0.00	0.00	00.00
דחדםו	(R. 55	15.00 10.00 10.00	5.47	7, 23	98,16	17.35	6,63	00.0	



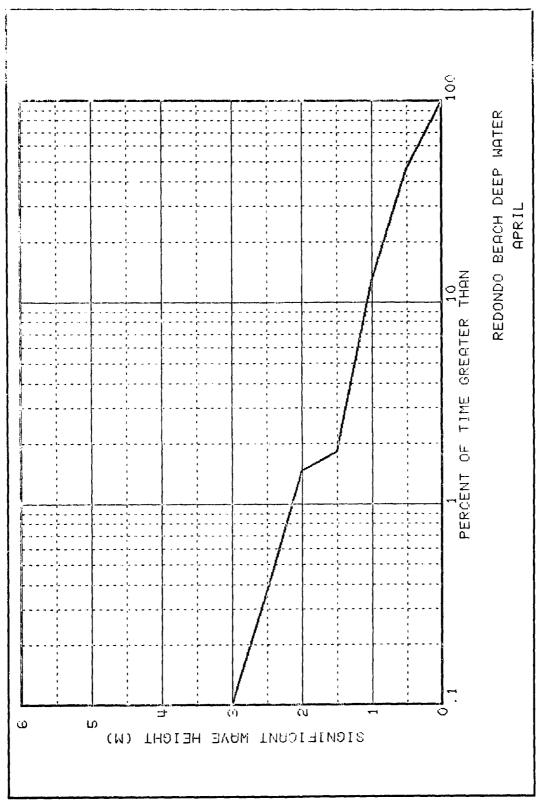
REDONDO BEACH DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)				PER10D	(SEC)				TOTAL
	9-4>	හ <u>-</u> ග	8-10	10-12	12-14	91-41	81-91	>18	•
0.0-0.5	2,12	9,00	2,83	3.89	21.19	9.53	0.89	00.00	49,45
0.5-1.0	16.73	69,8	1.25	1.23	2,56	3,53	P.84	00.00	34,98
1.0-1.5	5.13	5,13	0.18	0.18	00.00	00.00	1,29	00.00	11,84
1.5-2.0	0.00	2,30	00.0	00.00	0.00	00.00	0.00	0.00	2.30
2.0~2.5	00.00	0.72	0.71	00.00	00.00	00.00	0.00	00.00	1,43
8.5-5.5	0.00	0.00	00.00	0.00	0.00	00.00	00.00	00.00	0.00
3,0-0,5	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00
TOTAL	24.02	28.84	4,96	5,31	23.65	13.06	4.36	00.00	



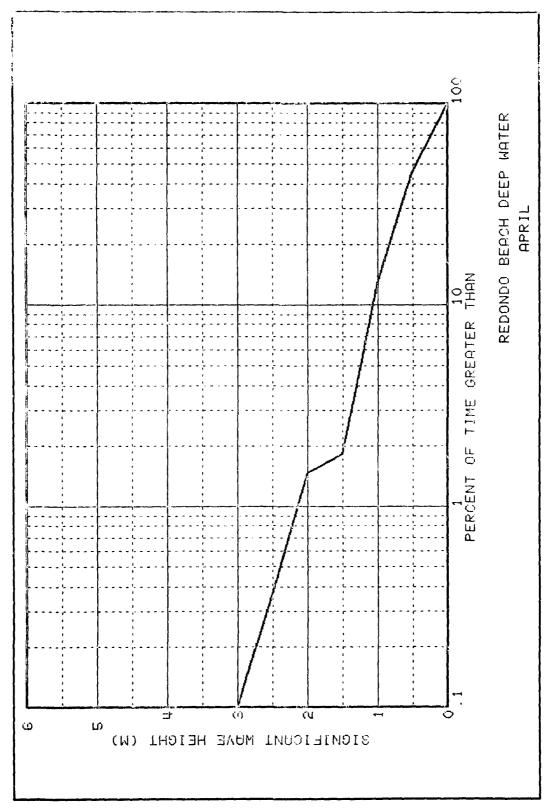
REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF MAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	2,34	16.37	3.76	3,23	19,59	7.73	0.30	00.00	53,92
0.5-1.0	20,50	5,03	2,69	0.92	1.25	2,88	0.00	00.00	33.27
1,0-1,5	6.82	3,42	0.18	00.00	0.18	00.0	0.37	00.00	10.93
1.5-2.0	00.00	0.37	00.0	00.00	0.00	00.00	0.00	00.00	0.37
2,0-2.5	00.00	0.73	0.37	00.00	00.00	0.00	0.00	00.00	1.10
2,5-3,0	00.00	0.00	0.37	00.00	00.00	00.00	0.00	00.00	0.37
3,0-3,5	0.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00
TOTAL	29,66	25.32	7,37	4.14	21.03	10.60	1.27	00.00	



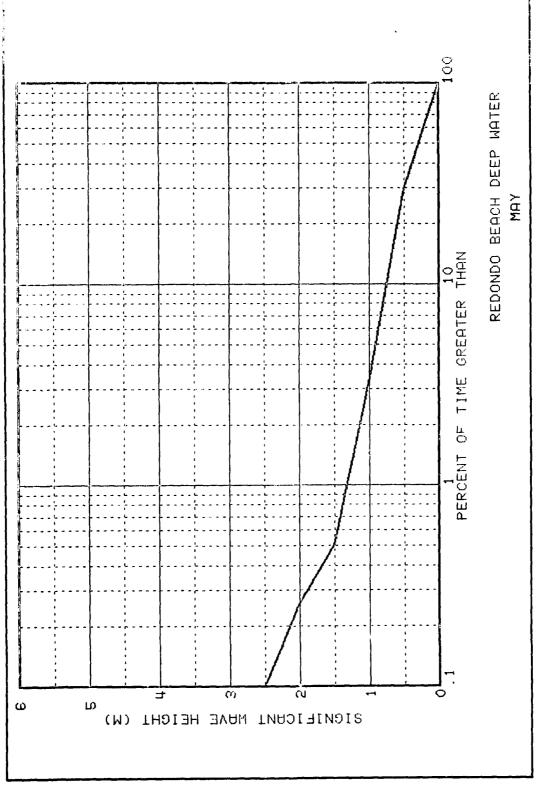
REDONDO SERCH DESP WATER CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-h>	ත ස	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.82	12.54	8.95	0.50	20.69	23,38	7.14	1.14	70,15
0.1-0.0	14,54	9.01	1.13	0.19	3.51	3.09	96.0	1.10	26,58
1,0-1.5	1,32	0.98	00.00	90.0	0.00	00.0	0.00	00.00	2.76
2.9-2.0	00.00	0.25	00.00	0.00	00.00	00.00	0.00	0.00	0.25
0.0-0.0	00.0	0.13	0,13	00.00	00.0	00.00	0.00	0.00	0.28
のである	00.00	00.0	00.0	00.0	00.0	00.00	00.00	00.00	00.00
3.0-3.0	00.00	00.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00
TOTEL	17.18	16.81	5,21	0.76	05.45	St. 45	e0.8	1.23	



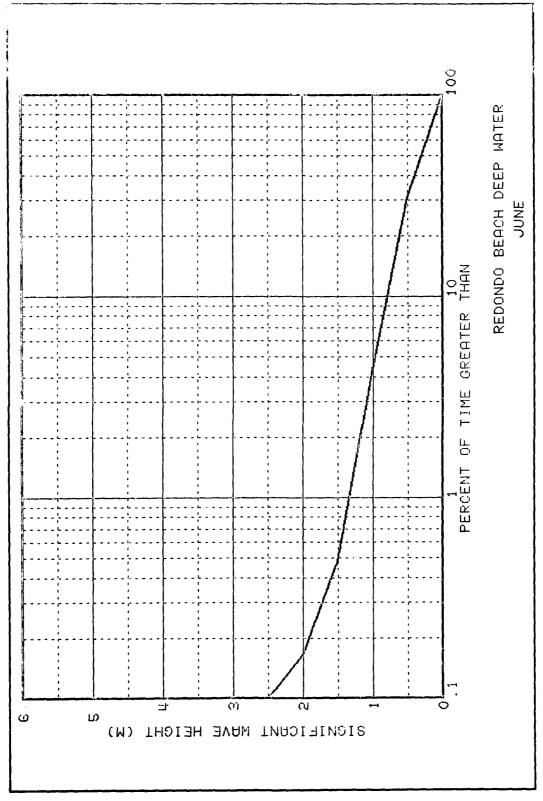
REDONDO BERCH DESP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT RND PERIOD FOR MAY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	8-4>	හ-ග	8-10	10-12	12-14	14-16	16-18	81.v	
0.0-0.5	0.82	12,54	8,93	0.50	20.69	23,38	7,14	1.14	70.15
0.1-0.0	14,54	10.6	1.13	0.19	3.51	3,09	0.98	0.14	26,55
1.0-1.5	1.82	0.88	00.0	90.0	0.00	00.00	0.00	0.00	2,76
0.5-2.1	0.00	0.25	00.00	0.00	00.00	00.00	0.00	0.00	0.25
0.9-0.5	00.0	0.13	0.13	00.00	00.0	00.00	0.00	00.00	0.25
0.00 by	00.0	0.00	0.00	00.0	00.0	00.00	00.00	00.00	00.00
3.0-3.0	00.00	00.00	0.00	0,00	00.00	00.00	00.00	00.00	00.00
TOTEL	17.18	16,31	18.05 18.05	0.76	24.20	3h*92	80.9	1,23	



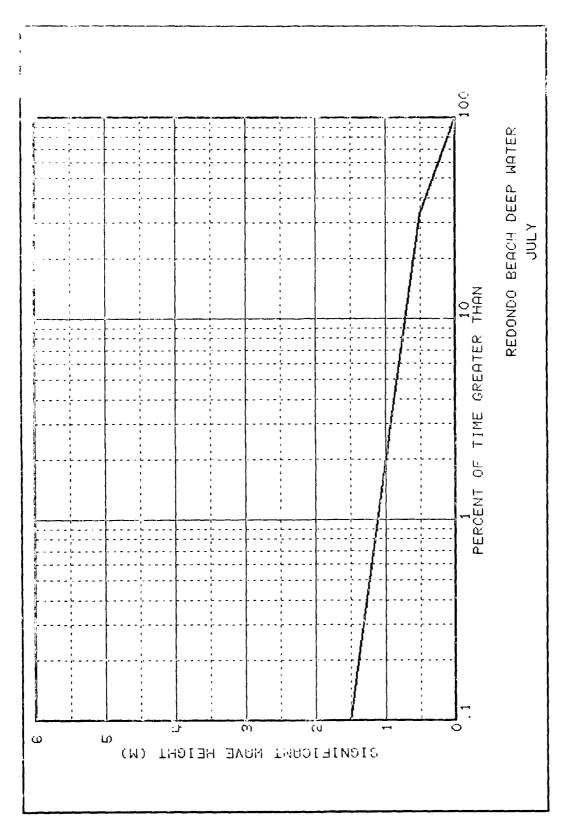
REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	·			PERIOD	(SEC)				TOTAL
	9-#>	6-8	8-10	10-12	12-14	31-h1	15-18	>18	
0.0-0.5	1.77	18,39	3.55	00.00	14,88	21,82	5,98	2.17	69,06
0.5-1.0	15.09	3,47	19.1	0,25	2.17	9,10	0.88	0.00	26.57
1,0-1,5	2,75	1,13	00.00	00.00	0.00	00.00	00.00	00.00	3,88
1.5-2.0	00.0	0,32	00.0	00.00	00.00	00.00	0,00	00.00	0.32
2.0-2.5	00.00	00.00	80.0	00.00	00.00	00.00	00.00	00.00	0.08
2.5-3.0	00.00	0,08	00.0	00.00	0.00	00.00	0.00	00.00	0.03
3,0-3,5	00.00	0,00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
TOTAL	19.61	23.89	5.24	0.25	17.05	24,92	6.86	2.17	



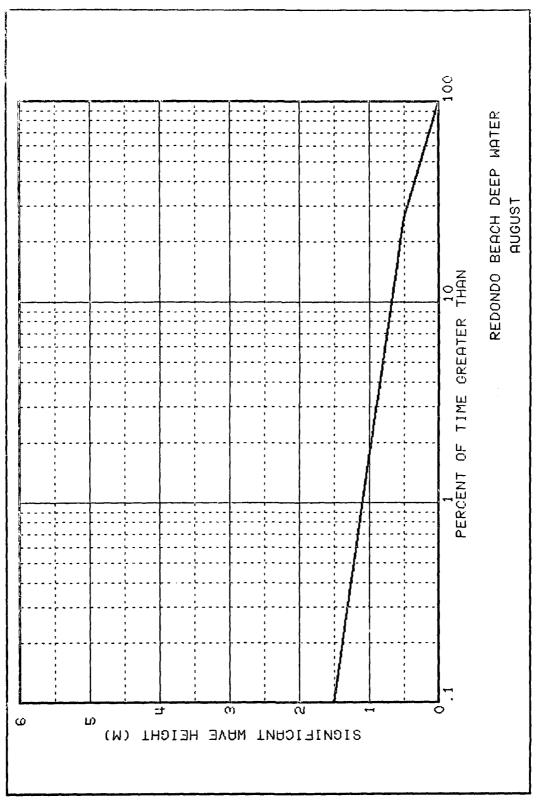
REDONDO BENCH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	တ - ထ	01-8	10-12	12-14	91-41	16-18	>18	
0.0-0.5	1.69	16,95	2,74	0.07	31,66	12.06	1,43	0.13	66.74
0.5-1.0	10,42	9.33	0.34	0.07	8.34	7.21	0.97	0.13	31.36
1,0-1,5	1.34	0,56	0,00	00.00	00.00	00.00	00.00	00.00	1.50
1,5-2.0	00.00	00.00	00.00	00.00	0.00	00.0	00.00	00.00	00.00
2.0-2.5	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
0.0.0	00.0	00.00	0,00	00.00	00.00	00.00	00.00	00.00	00.00
3,0-3,5	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
TOTRL	13,44	20,30	3,59	0.14	40.00	19.28	2.40	0.26	



REDONDO BEACH DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

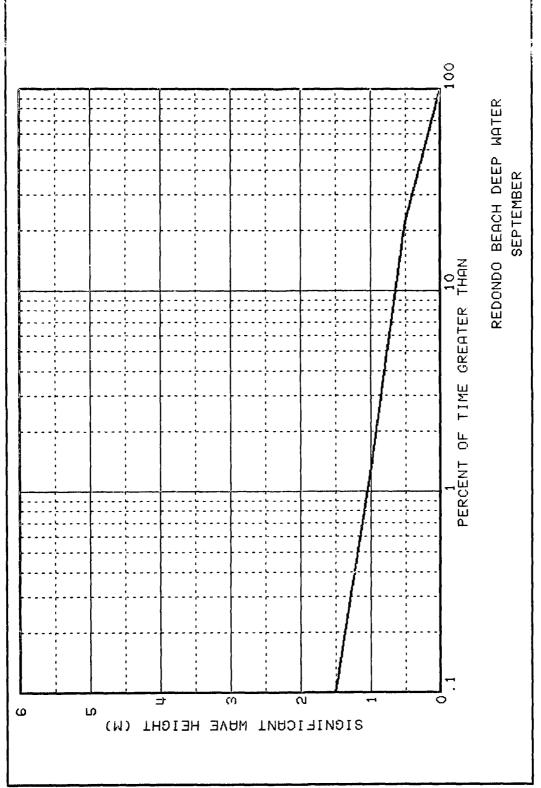
HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-h>	<u>ရ</u>	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.94	17.77	2.91	0,18	23,91	22,49	4,08	0.47	73.73
0.5-1.0	8,24	2.10	0.72	0.24	7,12	4.07	1,96	0.12	24,58
1.0-1.5	1.05	0.65	00.00	0.00	0.00	00.00	0.00	00.00	1.69
1.5-2.0	00.00	0.00	00.00	00.00	00.0	00.00	00.00	0.00	0.00
2.0-2.5	00.00	00.00	00.0	00.00	0.00	00.00	0.00	00.00	0.00
2,5-3,0	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00
3.0-0.6	00.00	0,00	00.00	00.00	0.00	00.00	0.00	00.00	0.00
TOTO	41.00	96.50	60.60	1 m C	91.09	96.56	B. Ott	0,59	



CUMULATIVE SER / SWELL FREQUENCIES OF MAME HEIGHT AND PERIOD FOR SEPTEMBER REDONDO BEACH DEEP WATER

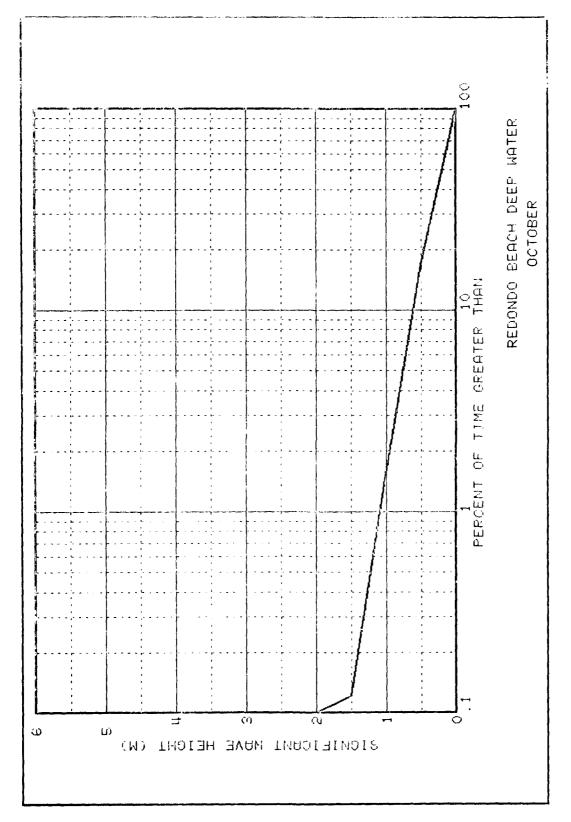
HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	01-8	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.54	9,24	1.23	94.0	32.82	23.76	8.04	0.87	77.96
0.5-1.0	7,08	1.08	91.0	91.0	6.60	3,29	1.92	0.53	20.81
1,0-1,5	0.77	0.39	00.00	00.0	0.00	00.00	0.00	00.00	1,15
1,5-2,0	00.00	0.03	00.00	00.0	00.00	00.00	00.00	0.00	0,08
2.0-2.5	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00	00.00
2.5-3.0	0.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	0.00
3.0-3.5	0.00	00.0	0.00	00.00	00.00	0.00	00.00	00.00	0.00
TOTAL	60	10,78	68.	0.62	39.42	27.05	96.6	04.1	

THE REAL PROPERTY.



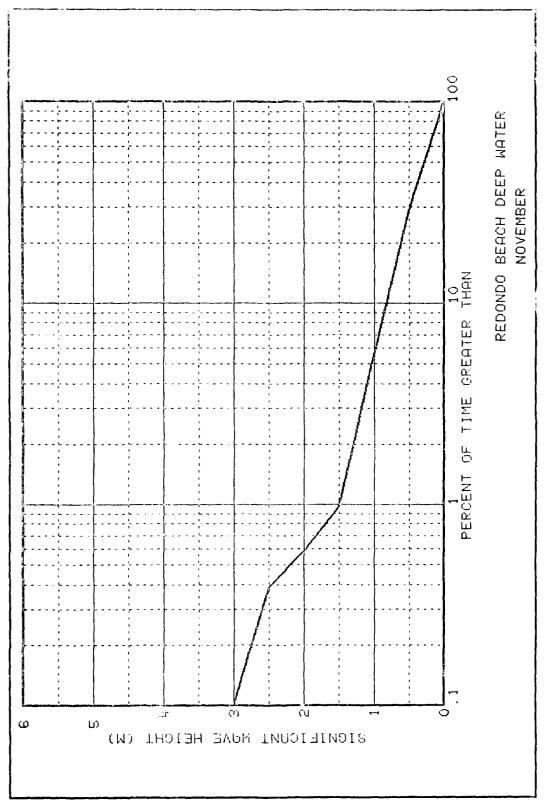
REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	09.0	5.01	1.67	2,51	48.69	19.75	4,63	0.35	83.18
0.5-1.0	6.21	0,43	0.12	0.24	5.21	2.28	0.56	0.17	15.27
1,0-1,5	1.03	0.36	00.00	0.00	0.00	00.00	00.00	0.00	1.43
1.5-2.0	00.00	0.12	00.00	0.00	0.00	00.00	0.00	00.00	0,12
2.0-2.5	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
2.5-3.0	00.0	00.00	00.00	0.00	0.00	00.00	00.00	0.00	00.00
3.0-3.5	00.0	00.00	00.00	0.00	0.00	0.00	0.00	00.00	0.00
TOTEL	7.03	5,36	1.79	2,75	53.68	22,03	5,18	0.52	



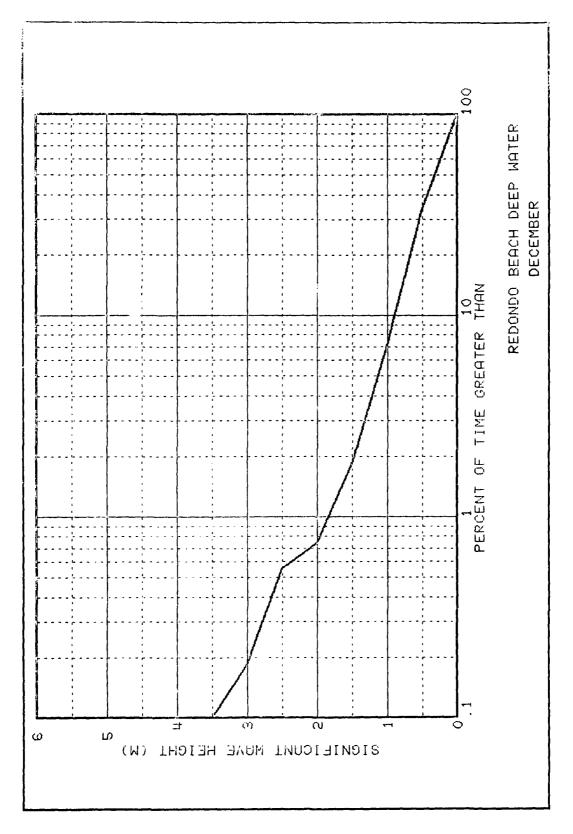
REDONDO BEACH DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)				PERIOD	(SEC)				TOTP!
	9-h>	8-6 8-8	8-10	10-12	12-14	91-41	16-18	>18	
0.0-0.5	1,34	10.27	1.13	4.93	32,50	17.67	3,23	0,00	71.08
0.5-1.0	11.01	2,28	0.76	1.71	3.61	3,80	0,19	0.00	23,37
1.0-1.5	1.52	2,29	0.58	0,19	00.00	00.0	00.00	0.00	4.59
1.5-2.0	00.00	0,39	00.0	0.00	00.00	0.00	0.00	0.00	0.39
2.0-2.5	00.00	0,19	00.00	00.00	00.0	00.00	0.00	00.00	0,19
2.5-3.0	0.00	0.19	0.19	0.00	00.00	00.00	00.00	00.00	0.39
3.0-3.5	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00
TOTAL	13.87	15.81	2.67	48.8	36.11	21.47	3,43	00.00	



REDONDO BEACH DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	හ - ග	8-10	10-12	H1-21	14-16	81-91	>18	
0.0-0.5	1,99	2.92	1,39	5,09	33,33	15.97	4.90	00.00	86.18
0.5-1.0	3.71	3.27	1.99	2,73	4.54	4.17	1.27	00.00	26.58
1.0-1.5	2,74	66.	0.55	00.00	0.00	00.00	0.00	00.00	5,29
1,5-2,0	00.00	0.32	0.18	00.00	00.0	00.00	0.00	0.00	1.11
2.0-2.5	00.00	00.0	0.13	00.00	00.00	00.00	0.00	0.00	0.18
8.5°-0.0	00.00	0.18	0.18	00.00	00.00	00.00	00.00	00.00	0.37
3.0-3.5	00.00	00.00	0.13	00.00	0.00	0.00	00.0	0.00	0.18
TOTAL	13.45	67.0	ν. υ	7,82	37.87	20,13	6.16	0.00	



REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 210

HEIGHT (M)					(SEC)				1 2 2
	9-4>	8-0	8-10	10-12	12-14	91-41	81-91	814	
0.0-0.5	0.29	0.02	0,02	00.00	12,42	±6.8	2.77	0.54	25.04
0.5-1.0	0.32	0.25	0.04	0,0	0.55	0,69	0.32	90.0	2.23
1.0-1.5	50.0	6.29	0.02	00.00	00.0	00.00	00.00	0.00	0.32
1.5-2.0	00.00	0.05	0,02	00.00	00.00	0.00	00.00	0.00	0.04
2,0-2,5	00.00	0.05	0,02	00.00	00.0	0.00	0.00	00.00	0.04
2.5-3.0	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00
9.0-9.K	0.00	00.00	00.00	00.0	00.00	00.00	00.00	0.00	0.00
TOTAL	0.62	±9.0	0.12	00.00	12.97	9°6	3,08	09.0	

REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL TREQUENCIES OF MAYE HEIGHT AND PERIOD WAVE DIRECTION = 240

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	හ භ	3-10	51-01	11-51	31-41	15-18	>18	
0.0-0.5	0.01	0.03	o. €0.	0.01	5,97	5.01	0.76	0.12	11.63
0.5-1.0	0.37	0.80	0.06	0.04	9,30	2.01	0,69	0,03	7.30
1.0-1.3	0.50	0,87	0.08	0.02	00.0	00.00	0.03	00.00	1.00
5.07	ਰੂ ੰ ਹੈ	0.19	0,000	10.0	00.0	00.00	0.00	00.00	0.21
10 10 10	00.0	80.0	00.00	00.0	0.00	00.00	00.00	00.00	୭୦.୦
C 10 10 10 10 10 10 10 10 10 10 10 10 10	00.00	G0.0	0.00	00.00	0.00	00.00	00.00	00.00	0.05
10-0-6	00.00	0013	0.01	0.00	00.0	00.00	00.0	00.00	0.01
181101		ου·.	~; ⊙	0.07	0.87	7.02	1.52	0,15	

REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD
WAYE DIRECTION = 270

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	6-3	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.41	2.14	0,62	0.86	86.3	96.0	0.38	0.00	12,36
0.5-1.0	3,52	2.20	54,0	6h.0	1.05	1,33	0.26	00.00	97.6
1,0-1,5	5t.0	96.0	0.05	0.00	0.01	00.00	00.00	00.00	1,43
1,5-2,0	0.00	0.19	00.00	00.00	0.01	0.00	0.00	00.00	^.20
2.0-2.5	00.0	0.05	80.0	00.00	00.0	00.00	00.00	00.00	0.13
0.5-3.5	00.0	0.00	0.01	00.00	00.0	00.00	00.00	00.00	0.01
3.0-3.5	0.00	00.00	00.00	00.00	00°0	00.00	0,00	0.00	00.00
TOTAL	4,35	5.54	1,13	1,35	ත් ව	2,29	49.0	0,00	

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/6 8/3
BEACH NOURISHMENT TECHNIQUES, REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM, L Z HALES, T W RICHARDSON
MES-TR-H-76-13-4-APP
NL AD-A102 376 UNCLASSIFIED 4 of **5**

CUMULATIYE SER / SHELL FREQUENCIES OF WAYE HEIGHT AND PERIOD MAYE DIRECTION = 800

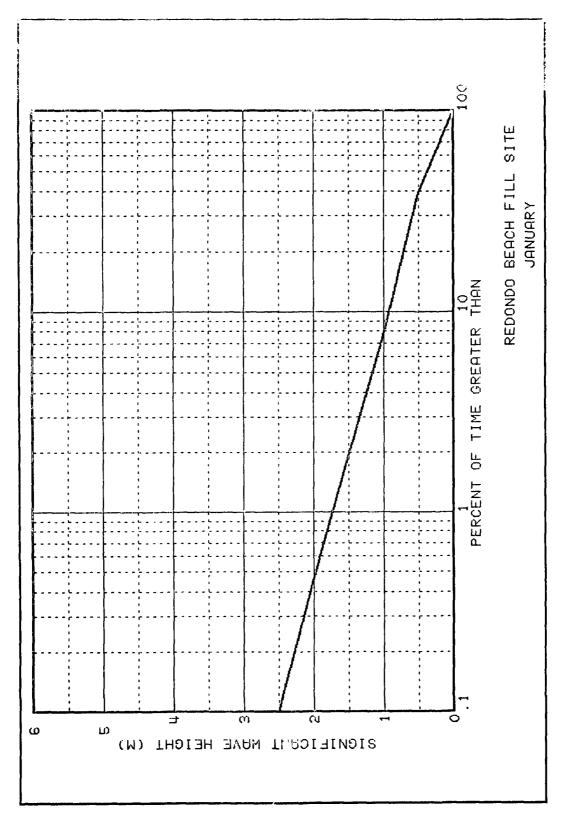
HEIGHT (M)				PERIOD	(353)				TOTAL
	૭-4>	හ-ග	3-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.85	9,19	1,90	0.75	ය. වෙ	3,55	0.89	00.00	19.80
0.5-1.0	P.59	0.12	0.56	0.14	90.0	00.00	0.01	00.00	3,44
1.0-1.5	0.45	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0.45
1.5-2.0	00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.00
0.0 0.0	0010	00.0	00.0	00.00	0.00	00.00	00.00	00.00	00.00
୦.୯.୮୬.୧) ୧୯	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.0	0.00
S.O-S.S	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00	0,00
TOTRE	69.69 6	9.31	2,47	60.0	(O)	3,55	0.30	00.00	

REDONDO BEACH DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 330

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	8-10	21-01	41-51	14-16	16-18	81<	
0.0-0.5	00.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00
0.5-1.0	3.77	0.00	0.00	0.00	00.0	0.00	0,00	0.00	3.77
1.0-1.5	0.79	0.00	00.00	0.00	00.00	00.00	0.00	0.00	0.79
1.5-2.0	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	0.00
2.0-2.5	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0,00	0.00
2.5-3.0	00.00	0.00	00.00	00.00	00.00	0.00	0,00	00.00	0.00
3.0-3.5	00.00	0.00	00.00	0.00	0.00	00.00	0.00	0,00	0.00
TOTAL	4.56	00.00	00.00	0,00	00.0	00.0	0.00	0.00	

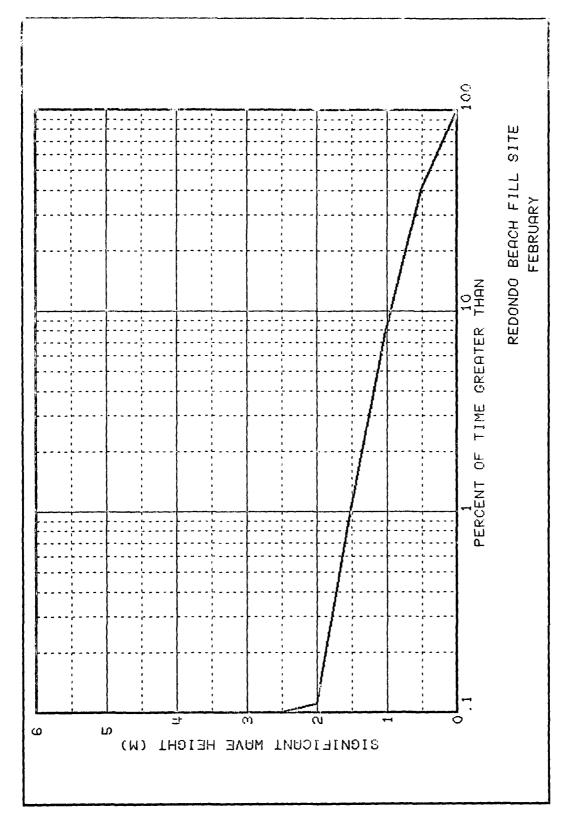
REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-h>	8-8	8-10	10-12		14-16	16-18	>18	
0.0-0.5	5.00	9,59	9·49	4.56	25.75	12,83	5.87	0.00	61.09
0.5-1.0	8.47	5,39	2,43	2.07		5,39	2,82	00.00	31.21
1.0-1.5	2.89	2.27	8h.0	0,00		0.00	00.00	00.00	ව ල
1.5-2.0	00.00	1.03	0.33	0,12		00.00	00.00	00.0	Jn'I
8.6-8.5	0.00	0.17	0,13	00.0		0.60	0,00	0°00	ن زير
0.8-8.6	00.0	00.0	0,00	00.0		00.0	00.0	ن ئى	Consultation of the Consul
0.0-9.5	00.00	00.0	00.00	00.0		00.0	0.00	6,00	0.0
TOTAL	16.97	12.44	00°0	0.01		10.72	C) 10	(J*)	



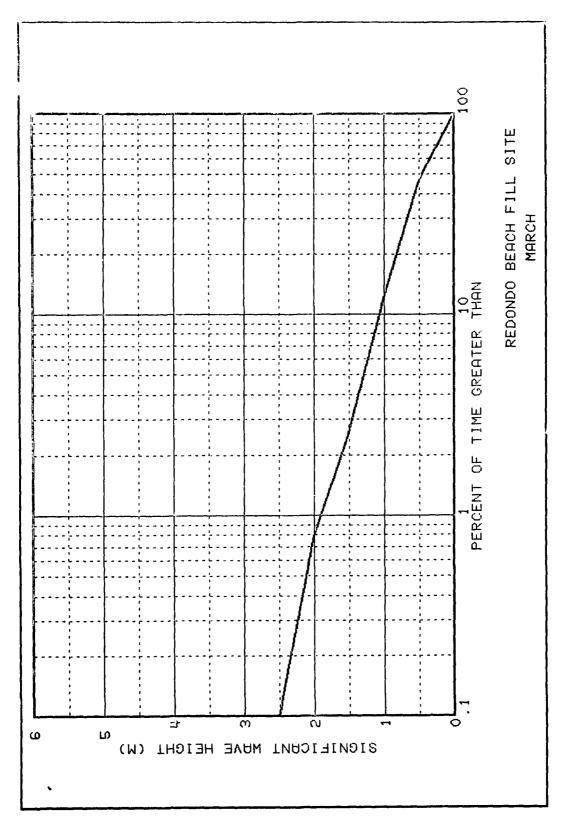
REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	3.09	5.41	1.58	5,20	26,34	11,43	5.37	9.00	50.12
0.5-1.0	10.11	5,36	2.97	2,03	4,25	5,92	1.26	0.00	32.51
1.0-1.5	89 · 3	3,57	68.0	00.00	0.01	00.00	0.00	0.00	7.29
1.5-2.0	0.35	64.0	00.00	00.00	0.13	00.0	00.00	00.00	0.97
2.0-2.5	0.11	0.00	00.0	00.00	00.00	00.0	00.0	0,00	0.11
2.5-3.0	00.00	00.00	00.0	00.00	0.00	00.0	00,0	0.00	₩.O.
3.0-3.5	00.00	00.00	00.0	00.00	00.00	00.0	00.00	ن دن	
TOTAL	16.55	15.38	24.47	7.83	85,15	17,05	ତ୍ୟ ଓ	ن دن	



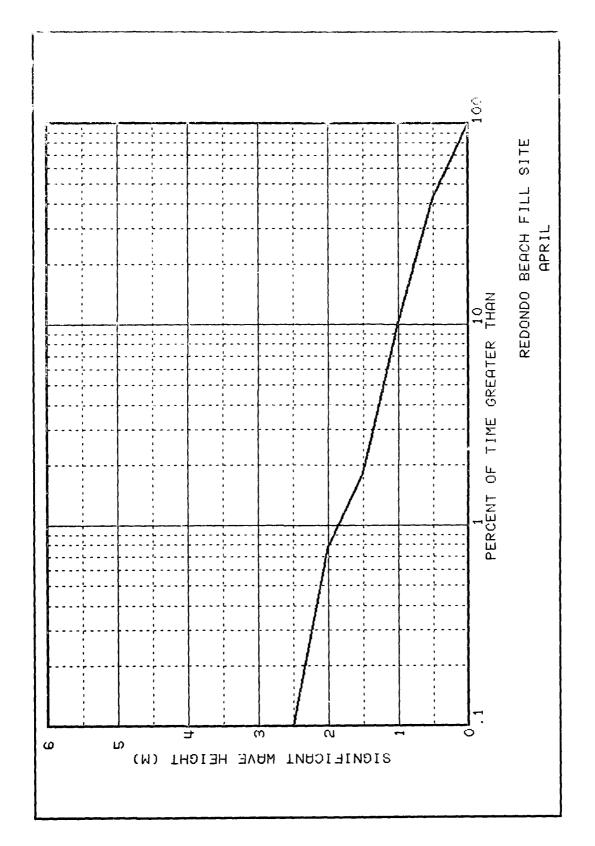
REDONDO BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-h>	8 8	01-8	10-12	12-14	91-h1	16-18	>18	
0.0-0.5	4,81	10,00	P,94	9,94	21,22	9.16	1.28	0.00	53.35
0.5-1.0	15,38	7.43	1.22	1.22	2,53	3,91	2.78	00.00	34.58
1,0-1,5	3.83	4,52	0.09	0.14	0,00	0.00	0.90	00.00	9, 87
1.5-2.0	0.00	1.53	0.20	0.00	0.00	00.00	0.00	0.00	19.1
2.0-2.5	0.00	0.35	en.0	0.00	00.00	0.00	0.00	(Ö*Ö	0.79
2.5-3.0	00.00	00.0	00.0	00.0	00.0	0.00	00.0	0,00	00.0
3,0-3,5	0.00	00.00	00.00	0.00	00.0	00.0	0,00	00.0	00.0
TOTAL	80.45	23.84	38.4	5.31	23,65	10.06	ଅଟି 'ଶ	ij, ΰ	



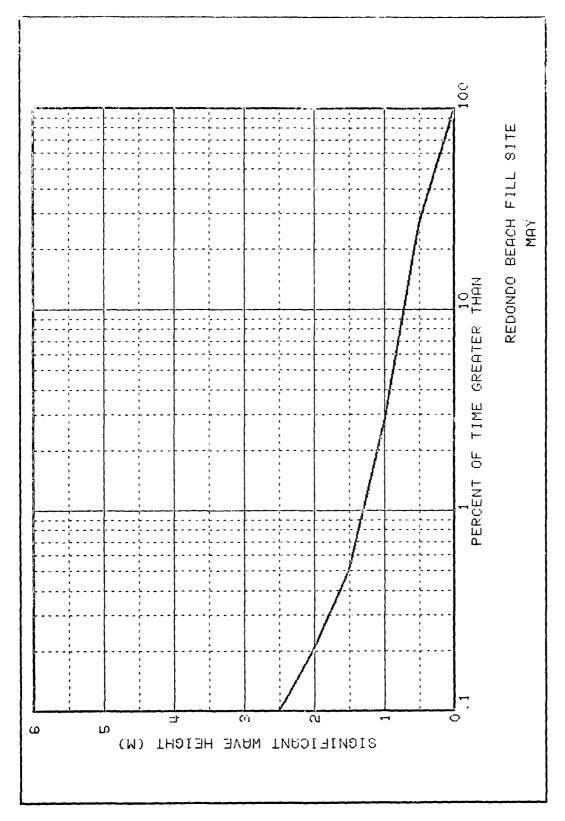
REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)				PERIOD	(SEC)				TOTPL
	9-4>	8-8	8-10	10-12	12-14	91-h1	16-18	>18	
0.0-0.5	2,00	17.37	3.76	3, 32	19.58	7.32	0.87	0.00	57.22
0.5-1.0	19,74	4,69	2,62	0.82	1.27	3.28	0.19	00.00	32.56
1.0-1.5	4,92	2,76	0.26	00.00	0.18	00.00	0.27	0.00	٠. ف
1.5-2.0	00.00	0,73	0.32	00.00	00.00	00.00	0.00	00.00	1,05
2.0-2.5	0,00	0.37	3ή·0	00.00	00.00	0.00	0°0	0.00	0 7 E
2.5-3.0	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	િં, દે
3.0-3.5	00.00	0.00	00.00	00.0	0.00	00.00	ن• دی	00.0	0°0°
TOTAL	29,86	28,92	7:37	41.4	81.09	10.60	1.27	0.00	



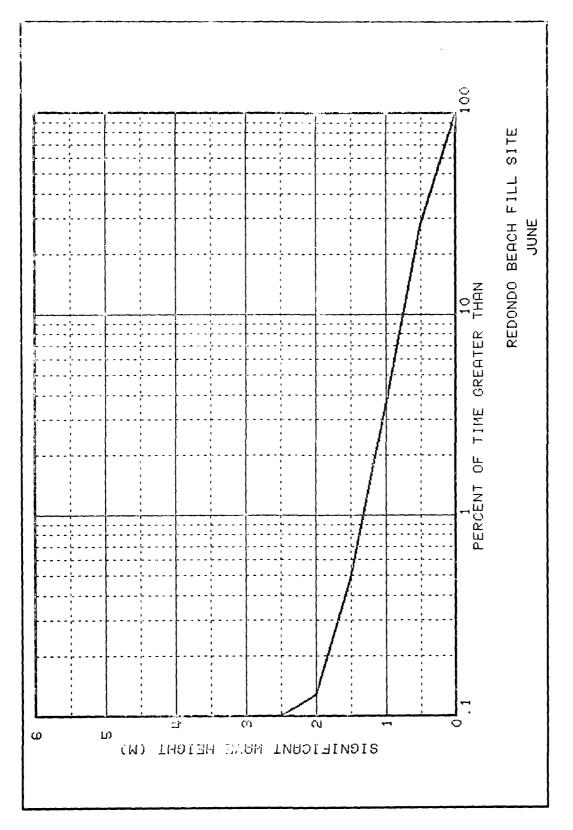
REDONDO BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9- 1 >	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	2.63	12,61	3,83	0.52	21,13	24,23	7.12	1.03	73,15
0.5-1.0	13,19	30.6	1.14	0.18	3.07	2,25 25	0.97	0.24	24,11
1,0-1,5	1.36	0.75	0.05	90.0	00.00	00.00	0.01	00.00	S. 23
1.5-2.0	00.00	0,25	0,05	00.00	00.00	00.00	00.00	00.00	0.30
2.0-2.5	00.00	0,13	0,00	00.00	0.00	00.00	00.00	00.00	02.0
2.5-3.0	00.00	00.00	00.00	00.00	001 <u>0</u>	00.00	00.0	00.00	υο'υ 1
3,0-3,5	0,00	00.00	00.0	0.00	00.00	00.0	(D'0	υυ * υ	ပ ံ့ပ
TOTAL	17,18	16,31	5,21	0.76	02,45	56,48	0, 0	1,00	



REDONDO BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR JUNE

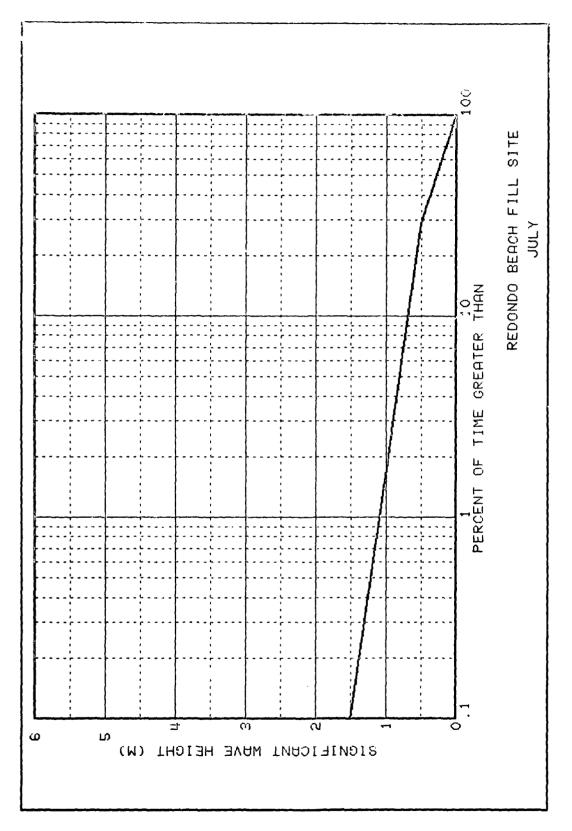
HEIGHT (M)				PERITOD	(SEC)				TOTAL
	9-4>	&-8	8-10	10-12	41-51	91-41	16-18	>18	
0.0-0.5	3.68	18.89	3,51	0.03	15,18	23,00	5,97	1.67	71.82
0.5-1.0	14,02	3,55	1,59	0.22	1,88	1.92	0.89	0.50	24.55
1,0-1,5	1.90	1.05	0.07	00.00	0.00	00.00	0.01	00.00	9.0
1.5-2.0	00.00	0,33	0,00	00.00	0.00	00.0	00.00	0,00	92.0
2,0-2,5	00.00	0.08	0,05	00.0	00.0	00*0	00.0	υċ•υ	0.10
2,5-3,0	00.00	00.00	00.0	00.0	0,00	00.0	00.0	0.00	ن'ن
3,0-3,5	00.00	0.00	00.0	00.00	00.0	00.0	60°0	ن* بين	0)*0
TOTAL	19,61	88.69 68.	18. 18. 18.	0.25	17,05	00,00	80.0	0.	



REDONDO BERCH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

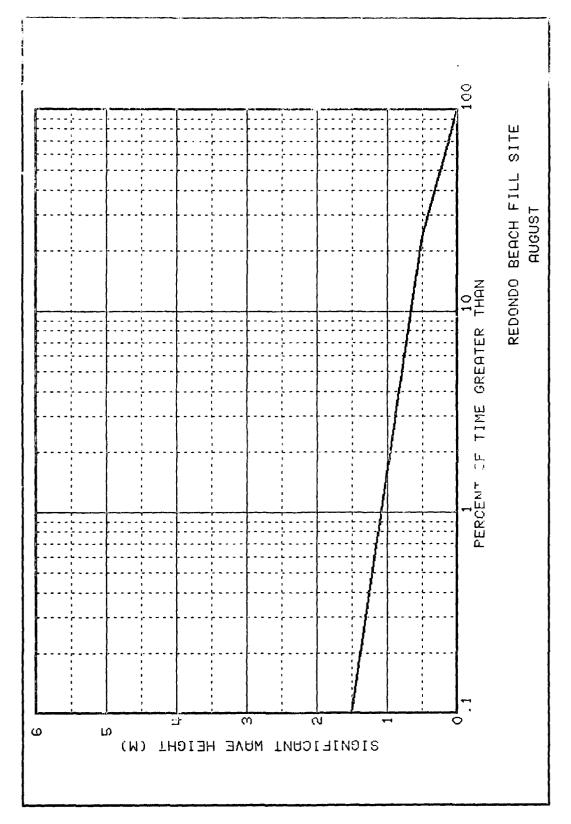
HEIGHT (M)				PERIOD	(SEC)				TOTPL
	9-4>	& 6	3-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	2,76	16,95	2.70	30.0	32,56	14.44	1.48	0.14	71.22
0.5-1.0	9,68	3,38	0.86	0.06	7,33	£3.4	16.0	0.12	27.17
1.0-1.5	1,00	0,56	0,03	00.00	00.00	00.0	0.02	00.00	1.62
1.5-2.0	0.00	00.00	00.0	00.0	00.00	00.00	00,0	0,00	0.00
2.0-2.5	0.00	00.0	00.00	00.00	00.0	0°00	6010	ύυ * υ	(D)*O
0.5-3.0	00.00	00.0	00.0	0010	0.00	03.0	6010	00 ° 0	00°0
3,0-3,5	00.0	00.0	00.00	00.00	00.00	00.0	0,00	0310	<u>ن</u> کی د
TOTAL	13.44	20,30	9.59	9,14	00°0'n	10,20	oin*8	92 . 0	

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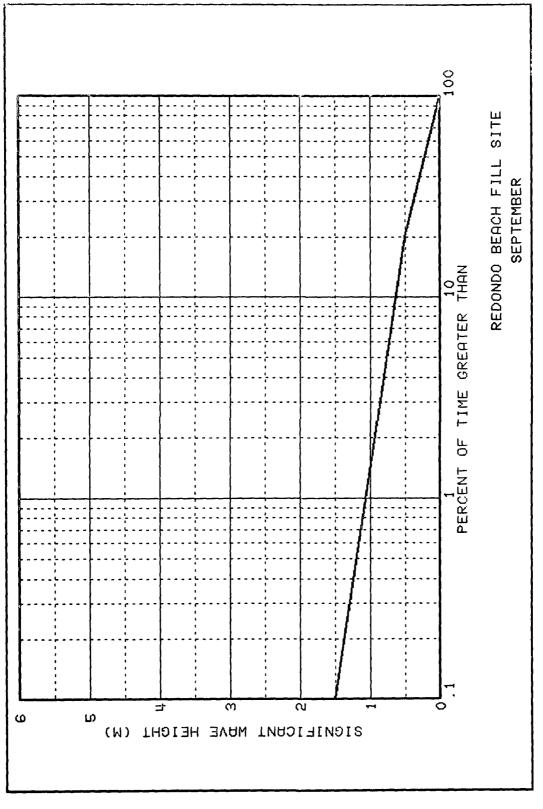
REDONDO BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	8-10	10-12	12-14	14-15	16-18	>18	
0.0-0.5	2.86	17.77	2.87	0.20	24,77	23,55	# . 2	0.40	76.65
0.5-1.0	7,50	2,10	0.74	0.20	6.27	3.02	1,78	0.19	21.80
1.0-1.5	0.85	0.65	0,03	00.00	00.00	00.00	60.0	00.0	1,55
1.5-2.0	0.00	00.00	00.00	00.00	00.00	00.00	00.0	0.00	٥٠°0
2.0-2.5	0.00	00.0	00.0	0,00	0.00	00.0	0.00	0,00	٥٠ ٠ ٥
2.5-3.0	0,00	00.0	00.0	00.00	00.00	0,0	00.0	Ş	0 / C
3.0-3.5	0.00	0.00	00.00	00.0	00.00	00.00	0,00	ن.	ξċ
TOTAL	11,22	20,52	69.69	11.0	e0.16	26,56	(C, OU)	c: c	



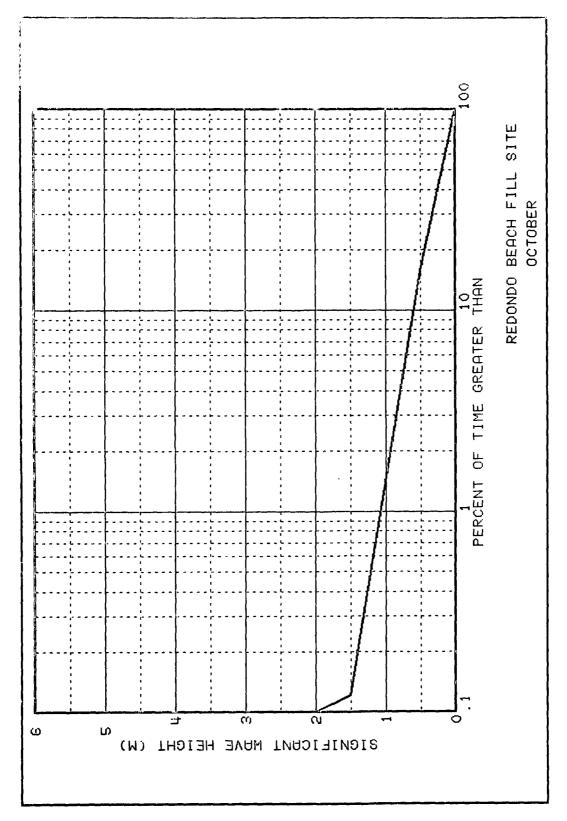
REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)				PERIOD	(SEC)				TOTPL
	9-4>	8-6	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	2,26	9,24	1.20	0.47	33 .6 8	24,63	8,03	69.0	80,15
0.5-1.0	6,51	1.08	0,13	0.15	5.79	2,42	1.89	94.0	18.48
1.0-1.5	0,62	0.33	0.01	00.00	00.0	00.0	0.04	0.25	1.30
1.5-2.0	00.00	80.0	00.0	00.00	00.0	00.00	00.0	0.00	0.00
2,0-2,5	00.00	00.00	00.0	00.00	۵,00	00.00	υύ•0	600	ن <mark>، ز</mark> ن
2.5-3.0	00.00	00.00	00.0	00.0	00.0	00.0	0,00	0,0	C . C
3,0-3,5	00.00	0.00	00.00	00.00	0.00	00,0	0,00	ω 1 0	9°00
TOTAL	85.00 0	10.78	1.30	0. 62	80,48	27,05	ଓ ଓ	Û'n·1	



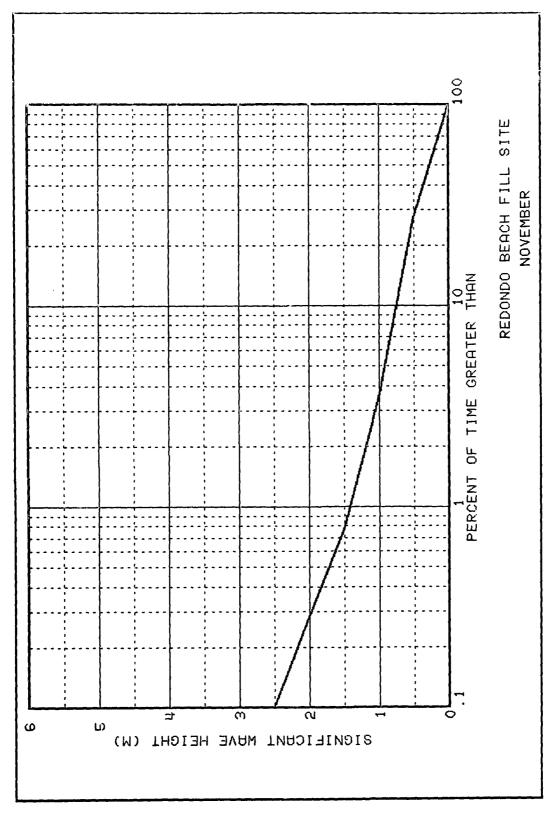
REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-h>	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1:21	5,13	1,61	2,52	49.15	19,48	4,55	0.31	84.29
0.5-1.0	5.56	0.36	0.14	0.23	4.73	2,55	0.61	0.13	14.31
1.0-1.5	0.31	0,36	0.01	00.00	00.00	00.00	e0,0	30.0	1,28
1.5-2.0	00.00	0.12	00.00	00.00	00.00	0.00	00.0	00.00	n, 12
2.0-2.5	0.00	00.0	00.00	00.00	0.00	00.0	00.00	9,00	0,00
2.5-3.0	00.00	00.0	0,00	00.00	00.00	00.0	ი.ო	00.0	ن ت ت
3.0-3.5	00.0	00.00	00.00	00.0	00.00	0,00	φ , σ	00.0	CC C
TOTAL	7,88	00°0	1.79	2,75	59,08	22,03	5,10	68 60 70	



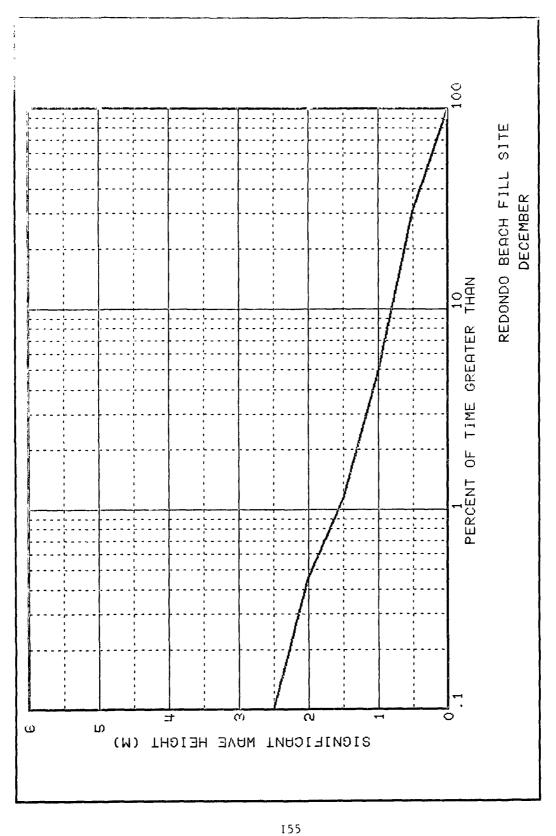
REDONDO BERCH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	හ •	8-10	10-12	1.2-14	14-16	16-18	81<	
0.0-0.5	3,48	11.37	1,19	5,03	32.48	15.87	3,05	0.00	72,46
0.5-1.0	9,23	2,53	1.03	1,66	eg.e	5,60	0.38	00.00	24,05
1.0-1.5	1,17	1.13	o.ec	0.15	00.00	00.00	00.00	00.00	2.71
1.5-2.0	00.00	0,40	0.09	00.0	0,00	00.00	00.0	00.00	6n*0
2.0-2.5	00.00	0.18	01.0	00.00	00.00	00.0	00.0	00°v	0.80
2,5-8,0	00.00	00.00	00.0	00.00	0.00	0υ * 0	00,0	ن دون	υ. Ω
3,0-3,5	00.00	0.00	00.0	00.0	0,00	00.0	00.0	00.00	ري ن • ري
TOTAL	19.87	15,61	2.67	ກ ວ•ຍ	26,11	21,47	en e	ن. د.	



REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	84.4	4.21	2,40	5,26	33,32	14,70	4.85	00.00	69,23
0.5-1.0	7.02	3,09	2.01	2,56	4°.54	5,43	1:31	00.00	25.88
1.0-1.5	1,94	1.36	0.36	00.00	00.00	00.00	0.00	00.00	3,66
1.5-2.0	00.00	94.0	0.22	00.00	00.00	00.00	00.00	00.00	0,68
હ 'સ- ૦ ' સ	00.00	0,17	0,25	00.00	00.00	00.00	00.0	0.00	6,43
2,5-3,0	00.00	00.00	0.03	00.00	00.00	0,00	0.00	Θ. 0	್ರ*೦
3.0-3.5	00.00	0.00	00.00	00.00	00.00	00.0	00.0	0,00	ζυ* υ
TOTAL	13,45	ତ. ସେ	5,28	7,82	57.67	20,13	8.18	o, o	



REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 210

HEIGHT (M)				PERIOD	(SEC)				TOTEL
	9-h>	တ - ဖ	8-10	10-12	41-51	91-h1	16-18	>18	
0.0-0.5	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
0.5-1.0	00.00	00.00	00.00	00.00	00.00	0.00	0.00	0.00	00.00
1.0-1.5	00.00	00.00	00.00	00.0	0,00	00.00	00.00	00.00	0,00
1.5-2.0	00.00	00.00	00.00	00.00	00.00	0,00	00.00	0,00	υυ·0
2.0-2.5	00.00	00.00	00.00	00.0	0.00	0,00	00.00	0.00	CO YO
2.5-3.0	00.00	00.00	00.00	00.0	00.00	00.0	ن دن	0,00	0.00
0.0-0.0	00.00	00.00	00.00	00.00	00.0	00.00	00.00	υ , α	Ç
TOTAL	00.00	00.0	00.00	00.00	0010	0,00	0,00	ن، ال	

CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT RND PERIOD MAVE DIRECTION = 240

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	හ-ග	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.73	0.47	0.03	00.0	00.0	0.00	00.00	00.00	 Sy.:
0.5-1.0	0.89	0.73	0.14	00.00	00.00	00.00	00.00	00.00	1.76
1.0-1.5	0.42	0.34	0,05	00.00	00.00	00.00	00.00	00.00	0.80
1.5-2.0	0.01	0.18	0.03	00.00	0.00	00.00	00.0	00.0	0,10
2,0-2,5	00.00	0,02	0.02	00.0	00.0	6.00	00.00	0,00	ن. ب ار
0.5-3.0	ō∂*ō	0.00	00.00	00.00	00.00	00.00	0.00	00.00	00.0
0.0-0	0.00	00.00	00.00	00.0	0010	00.00	00.00	0.00	S. C.
TOTOL	2,05	1.87	0,83	00.0	00.00	00,0	ψυ ' υ	0,00	

REDONDO BEACH FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 270

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8 8-8	8-10	10-12	12-14	91-h1	16-18	>18	
0.0-0.5	0.56	2.14	0.67	0.90	25,86	16.05	3.99	0.54	50,70
0.5-1.0	9.40	2.20	Q, 38	0.50	011.4	2,90	1.18	0.19	15.16
1.0-1.5	0.39	0.96	0,04	0.01	10.0	00.00	0.07	0.03	1,50
1.5-2.0	00.0	0.13	0°0°	0.01	10.0	00.00	00.00	0.00	ل _ا ج ن
2.0-2.5	00.00	0,05	0.08	0.00	00.00	00.00	00.0	00°0	0,10
2.5-3.0	00.00	0.00	00.00	00.00	0.00	00.00	00.0	00.0	ين ني
3.0-3.5	00.00	0,00	00.00	00.00	0.00	00.0	٥٠٥٥	ρύ ^τ ο	a, ch
TOTAL	4, 35	5,54	1,13	1.42	30,20	10.05	ਜੂਹ ' ਲ	0.76	

REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MAVE DIRECTION = 300

HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	6-8	8-10	10-12	15-1u	14-16	16-18	>18	
0.0-0.5	0.98	3.13	1,05	0.77	2,63	2,99	0.82	00.00	19.28
0,5-1,0	2,50	0.12	0.59	0.12	0.04	0,57	0.08	00.00	4,02
1.0-1.5	04.40	00.0	60.0	00.00	00.0	00.00	00.00	00.00	en o
1.5-2.0	00.00	00.0	00.0	00.00	00.00	0,00	00.00	00.0	00.0
10 0 0 0 0	00*0	0.00	60.0	00.0	00.00	00.0	0.00	00.00	00.0
0.5-2.9	0.00	00.0	υυ·ύ	00.0	00.0	0.00	00.00	0.00	0,0
8.0-0.0	00.0	00.0	66.0	0,00	00.00	00.0	0.00	00,0	0.00
10778	မ ရှိ	9,31	211 °C	0.03	5,63	2,55	0.0	φ. ου	

REDONDO BEACH FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MANE DIRECTION = 330

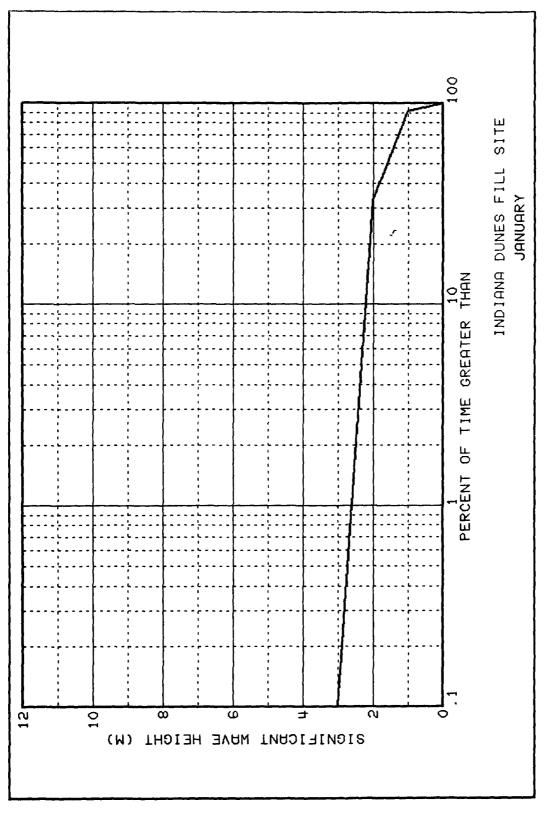
HEIGHT (M)				PERIOD	(SEC)				TOTAL
	9-4>	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0,83	00.00	00.00	00.00	00.00	0.00	0.00	00.00	0.83
0.5-1.0	9,29	00.00	00.00	00.00	00.00	00.00	00.00	00.00	e. 29
1,0-1,5	0,45	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.45
1,5-2.0	00.00	00.00	0,00	00.00	00.0	00.0	00.00	00.0	0.00
2.0-2.5	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00,0
2.5-3.0	00.00	00.00	00.0	0.00	υω•υ 0	00.00	00.00	00.00	<i>်</i>) က
3,0-3,5	0.00	00.0	00.00	00.0	00.0	00.0	00.0	ပ္ပံ့ပ	0010
TOTAL	4,56	00.0	00.0	0010	00,0	00.0	υ _ν το	GU V	

APPENDIX J: AVERAGE WAVE CLIMATE AT INDIANA DUNES, IND.

- - <u>a.</u> Tabulations of monthly percent occurrence of wave-height/period combinations.
 - \underline{b} . Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

INDIANA DUNES FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	55	
10-00	8.76	00.00	0.00	0.00	00.00	0.00	0.00	00.0	0.00	0.00	8,76
01-02	53.03	5.31	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.0	
02-03	8.58	16,31	7.41	00.00	0.00	0.00	0.00	00.00	0.00	0.0	32,90
40-E0	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00	00.00	0.00	0.00
04-02	00.00	00.00	0.00	0.00	00.00	0.00	0.00	0,00	0.00	0.00	00.00
05-06	0.00	0.00	00.00	0.00	00.0	0.00	00.00	0,00	00.00	0.00	0.00
06-07	0.00	00.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.0	0.00
07-08	00.00	00,00	0.00	00.00	00.00	0.00	0,00	00.00	0.00	0.00	00.00
60-80	00.00	0.00	0.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	0.00
09-10	0.00	00.00	00.00	00.00	00.00	0.00	0.00	0,00	0.00	0.00	00.00
TOTAL	70,37	22.22	7.41	0.00	0.00	0.00	0.00	0.0	0.0	0.00	

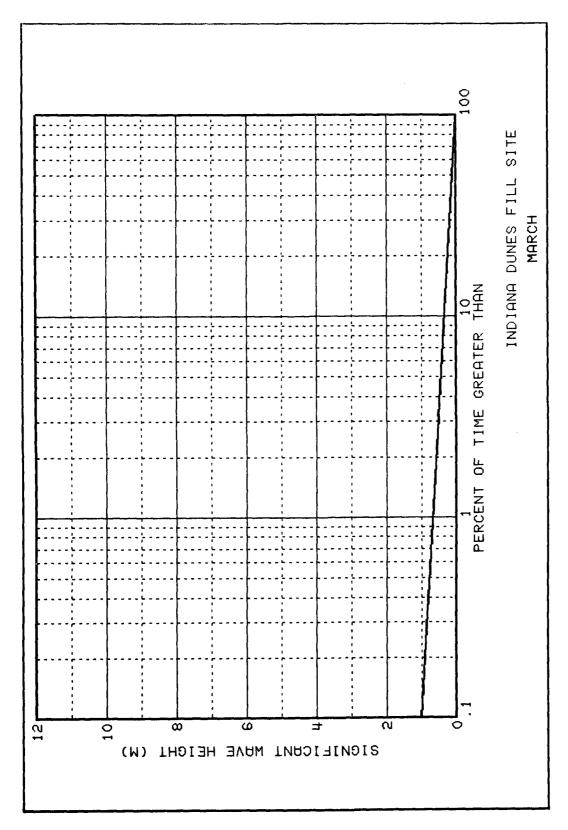


CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	9- 2>	8-8	8-10	10-12	12-14	91-h1	16-18	18-20	20-22	>22	
10-00	16.54	00.00	00.00	0.00	0.00		0.00	0.00	0.00		16.54
01-05	33.46	7.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.41
02-03	0.00	25.38	0,00	0,00	16.67		0.00	0.00	0.00	0.00	42.05
₩0-60	0.00	0.00	0.00	0.00	00.00		0.00	0.00	0.00	0.00	0.0
04-05	00.00	0.00	0.00	0.00	00.00		0.00	0.00	0.00	0.00	0.0
02-06	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00
06-07	00.00	0.00	0.00	00.00	00.00		0.00	0.00	0.00	0:00	0.0
07-08	0.00	0.00	0.00	0.00	00.00		0.00	0.00	0.00	0.0	0.0
60-80	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	٠. و	0.00
03-10	0.00	0.00	00.00	0.00	0.00		0.0	0.00	0.00	0.00	0.00
TOTAL	50,00	33.33	0.00	0.00	16.67	0.00	0.00	0.00	0.00	0.00	

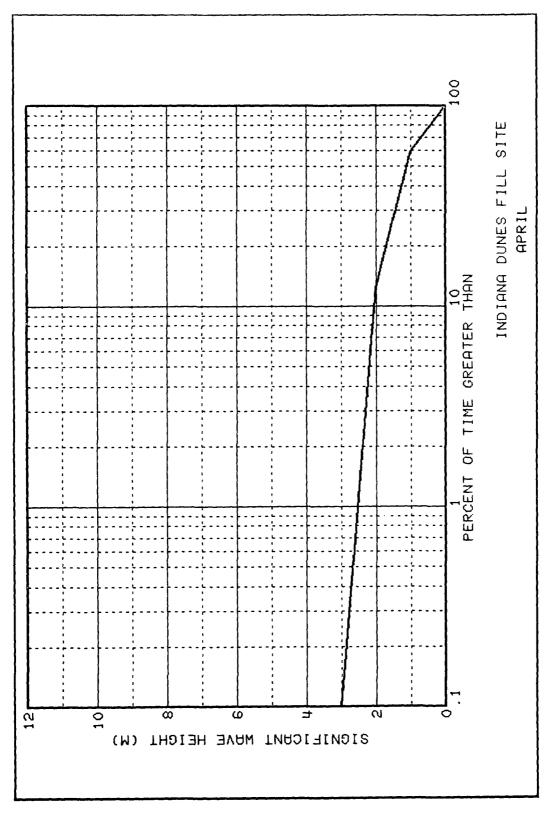
INDIANA DUNES FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	00.00	00.00	0.00		0.00		0.00	0.00	0.00	0.00	
01-02	00.00	00.00	0.00	00.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0
02-03	00.00	00.00	0.00		0.00		0.00	0.00	0.00	0.00	0.00
40-E0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00
04-05	0.00	00.00	00.00	0.00	0.00	00.00	0.00	0.00	00.00	0.00	0.0
05-06	0.00	00.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00
20-90	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	00.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60-80	0.00	00.00	0.00	00.00	0.00	00.00	0.00	0.00	0.00	00.00	0.00
01-60	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	0.00	00.00	0.00
TOTAL	00.00	00.00	00.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	



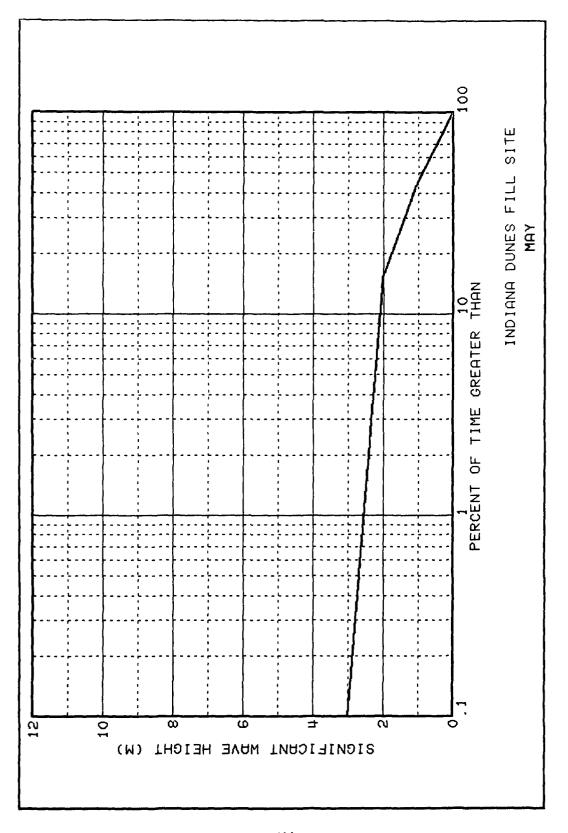
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42- 8	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	55 <	
10-00	31.10	4.99	3.14	1.21	0.00	0.00	0.00	0.00	0.00	0.00	40.43
01-05	36.17	6.20	4.17	0.61	00.00	0.00		0.00	0.00	0.00	47.14
02-03	0.00	7.00	5,42	0.00	0.00	0.00		0.00	0.00	0.00	12.42
₩-0-60	0.00	00.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	00.00	0.00	0.00	00.00	00.00	0.00	0.00	0.00	0.00	0.00
02-06	0.00	0.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0,00	0.0
07-08	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60-80	0.00	0.00	0,00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00		00.00	0.00			0.00	00.00	0.00	0.00	0.00
TOTAL	67.27	18.18	12,73	1.82	00.00	0.00	00.00	0.00	0.00	00.00	



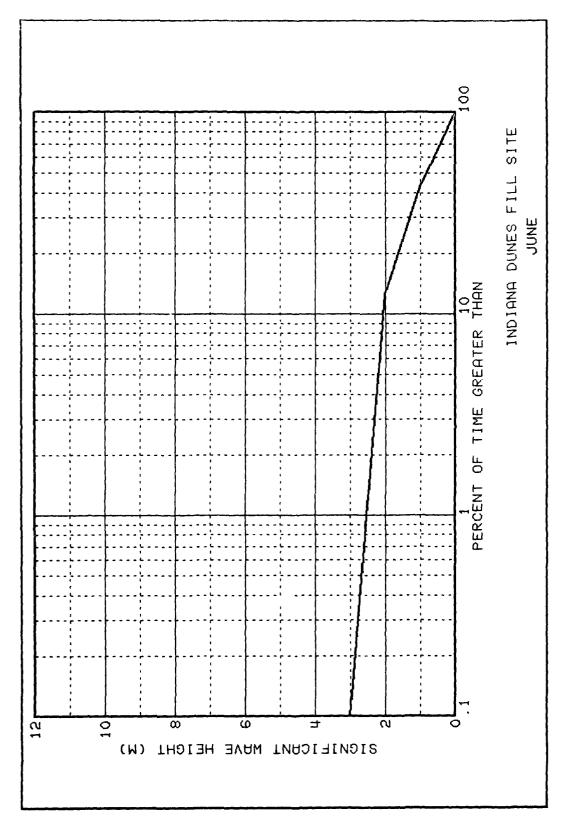
INDIANA DUNES FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14		16-18	18-20	20-22	>22	
10-00	51,29	1,89	0.81	0.00	00.00		00.00	0.00	0.00	00.00	59,99
01-02	27.20	1.68	1.73	0.22	0.00	00.00	00.00	0.00	0.00	0.00	30.83
02-03	2,00	4.56	3.97	4.66	0,00		00.00	0.00	0,00	0.00	15.18
to-60	00.00	00.00	00.00	0.00	0.00		0.00	0.00	00.00	0.00	0.00
04-05	00.00	00.00	00.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00
05-06	00.00	00.00	00.00	00.00	0.00		0.00	0.00	0.00	0,00	0.00
06-07	00.00	00.00	0.00	0.00	0.00		0.00	00.00	00.00	0.00	0.00
07-08	00.00	00.00	00.00	00.00	0.00		0.00	0.00	0.00	0.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00		00.00	00.00	0.00	00.00	00.00
01-60	00.00	00.00	00.00	0.00	0.00		00.00	00.00	00.00	00.00	00.0
TOTAL	80,49	8.13	6,50	3. 3.	00.00		00.0	0.00	0.00	00.0	



INDIANA DUNES FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR JUNE

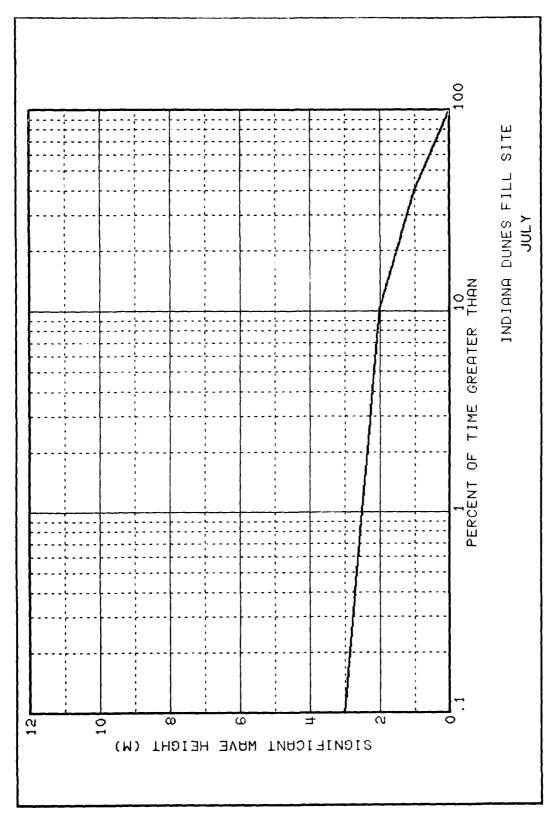
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	×25 <	
10-00	55,08	2.41	0.00	00.00		00.00	00.00	00.00	00.00	0.00	57.49
01-02	25,01	4.17	0.32	00.00		00.00	00.00	00.00	00.00	0.00	29.94
02-03	2.98	6.50	2,76	00.00		00.00	0,00	00.00	00.00	0.00	12.57
40-E0	00.00	0.00	0.00	00.00		00.00	00.00	00.00	00.00	0.0	00.0
04-05	00.00	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0.00	0.00	00.00
02-06	00.00	00.00	00.00	00.00		0.00	00.00	0.00	0.00	0.00	00.00
06-07	00.00	00.00	0.00	00.00		0.00	00.00	0.00	0.00	0.00	00.0
07-08	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	0.00	0.00
60-80	00.00	0.00	00.00	00.00		00.00	00.00	0.00	0.00	00.00	0.00
03-10	00.00		00.00	00.00		00.00	00.00	00.00	00.00	00.0	0.00
TOTAL	80.08	-	3,03	0.00		0,00	0,00	00.0	00.0	00.00	



CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

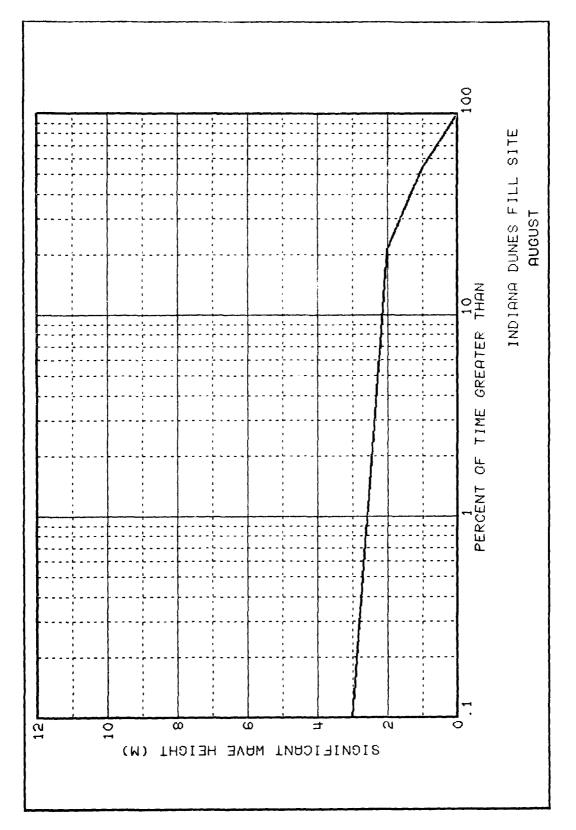
HEIGHT (M)					PER I OD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	57,39	2,42	0.54	0.00	00.00	00.00	00.00	00.00	0.00	00.00	60,35
91-05	26.98	1,53	0.60	0.82	00.00	00.00		0.00	00.00	00.00	29,33
02-03	2,73	4.12	2.08	1.39	00.00	00.00		00.00	00.00	00.00	10.32
99-04	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
04-05	0.00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	000
02-06	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
06-07	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00
07-08	00.00		00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
60-80	00.00		0.00	0.00	00.00	00.00			00.00	0.00	00.0
01-60	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.0
TOTAL	87.10	3.07	9.52 5.22	19.1		00.00		0.00	00.0	0.00	

The Million of the second



CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR AUGUST

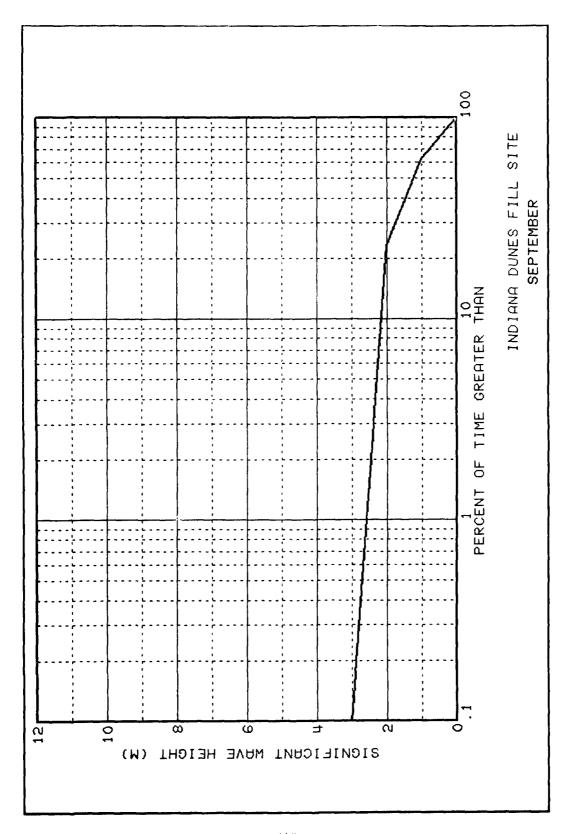
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	91-41	16-18	18-20	20-22	>22	
10-00	45.76	2.52	0.69	0.39	00.00	00.00	00.00	0.00	0.00	0.00	46.36
01-05	25,54		1,48	0,36	0.00	00.00	0.00	00.0	0.00	0.00	32.54
02-03	3.30	10.07	3.74	9,39	0,59	00.00	00.00	00.00		00.00	21.10
03-04	00.00		00.00	00.00	00.00	00.00	00.00	0.00		0,00	00.0
04-02	00.00	0.00	00.00	00.00	00.0	00.00	00,00	00.00	00.00	0.00	0.00
02-06	0.00		0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00
20-90	00.00		0.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
07-08	00.00		00.00	00.00	0.00	00.00	0.00	00.00	00.00	0,00	00.00
60-80	00.00		0.00	00.00	00.00	00.00	00.00		00.00		00.00
09-10	0.00		0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.0
TOTAL	71.60	17.75	5,91	4.15	0.59	0.00	00.00	00.00	00.0	00.00	



INDIANA DUNES FILL SITE

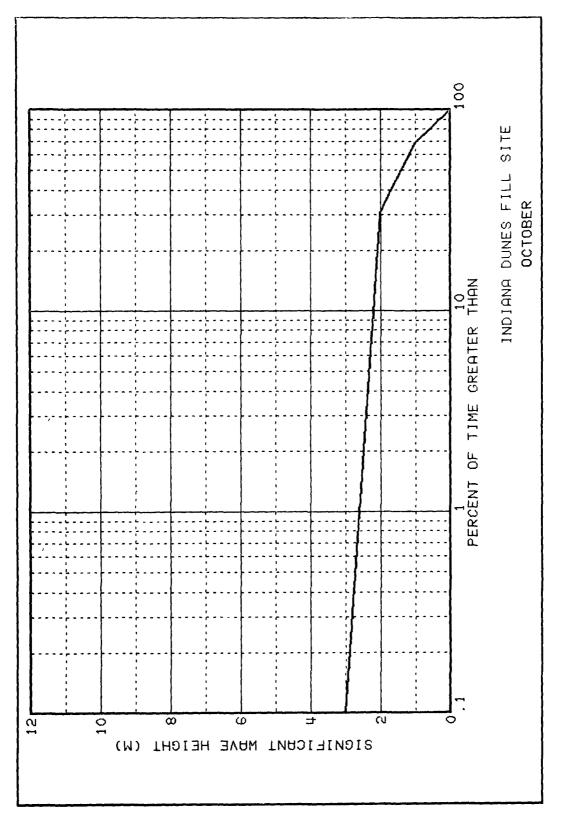
CUMULATIVE SER / SNELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-13	18-20	20-22	5 5<	
10-00	34,54	2.90	0.13	00.00	00.00	00.00	0.00	00.00	0.00	0,00	37.57
01-05	32,82	3.12	2,05	1,11	0.07	0.00	00.00	00.00	0.00	00.00	39.16
02-03	5,10	11,37	3,62	0.34	0.66		0.73		0.00	00.00	23.27
to-e0	00,00	00.00	00.00	00.00	00,00		00.00		0.00	00.00	00.00
04-02	0.00	00.00	00.00		00.00	0.00	00.00	0.00	00.00	00.00	
02-06	00.00		00.00	0.00	00.00	00.00	0.00		00.00	00.00	0.00
20-90	00.00	00.00	0.00	00.00	00.00	0.00	00.00		00.00		0.00
07-08	00.00	00.00	00.00	0.00	00.00	00.00	0.00	0.00	00.00	00.00	0.00
60-80	00.00	0.00	00.00	0.00	0.00	00.00	0.00	00.00	00.00	00.00	00.00
03-10	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00
тотяц	72.47	17,39	5,80	1,45	0,72	0.73	0.73	0,72	00.00	00.00	



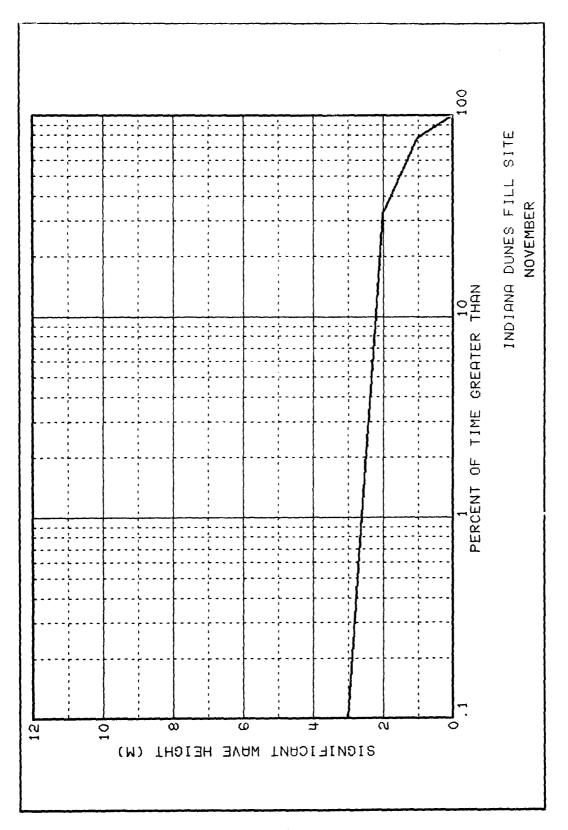
INDIANA DUNES FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	3-10	10-12	12-14	14-16	16-18	18-20	20-22	>22 22	
00-01	29,75	1.77	00.00	0.00	00.00	00.00	0.00	00.00	0.00	0,00	31.52
01-02	32,54	4.25	0,99	00.0	0.00	00.00	00.00	00.00	0.00	0,00	37,88
02-03	8,63	12.09	86.3	1.45	00.00	1,45	00.00	0.00	0.00	0.00	30,60
40- 60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
04-05	00.00	0.00	00.00	00.0	00.0	00.00	00.00	0.00		00.00	00.00
02-06	00.00	00.00	00.00	00.0	00.00	00.0	00.00	00.00	00.00	0.00	00.00
06-07	00.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00	00.00
07-08	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	00.0
60-80	0,00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
09-10	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00
TOTAL	71,01	18,11	7,37	1,45	0.00	1.45	00.00	00,00	00.00	00.00	



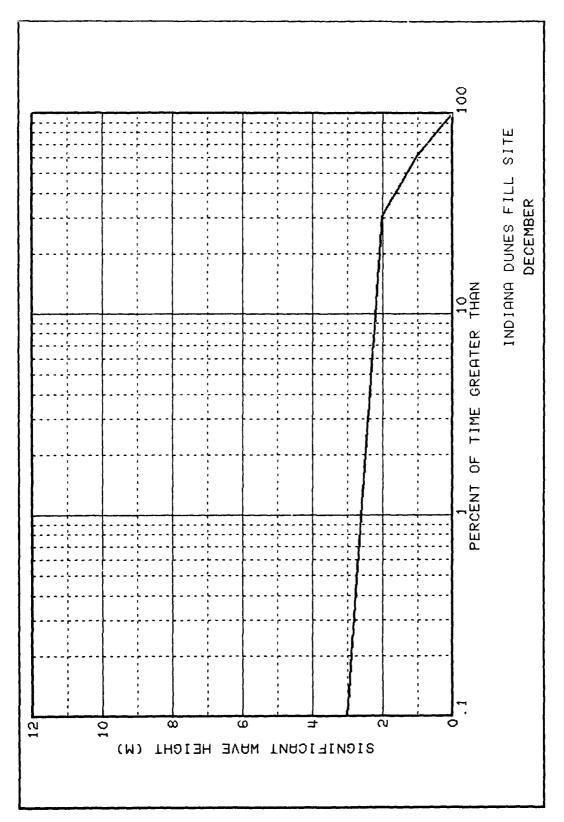
INDIANA DUNES FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	20,87	1.06	0.00	0.00	00.00	00.00	00.00	00.00	0.00	00.0	21.93
01-02	37,62	3,59	1 11. 6	0.71	0.00	00.00	00.00	0,00	00.00	00.0	45.32
02-03	7.47	12.37	5,10	5.67	0.71	0.71	0.71	00.00	00.00	00.00	32.74
40-E0	00.00	00.00	00.00	00.0	0.00	00.00	00.00	00.00	0.00	0.00	00.00
04-05	00.00	0.00	00.00	0.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00
05-06	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
06-07	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
07-08	00.00	00.0	00.00		00.00			00.00	00.00	00.00	00.00
60-80	0.00		00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00
01-60	00.00	00.00		00.0	00.00	00.00	00.00	00.00	00.00	00.00	
TOTAL	65,36	17,02	8.51	6,33	0.71	0.71	0.71	00.00	00.00	0.00	



INDIANA DUNES FILE SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	29,73	7.46	1,49	00.00	0.00	00.00	00.0	00.00	00.00	0.00	38.63
01-02	26,43	4.07	00.00	00.0	00.00	00.00	00.00	0.00	00.00	0.00	30,50
02-03	9.51	12.35	4,43	4,48	0,00	00.00	00.00	0.00	00.00	0.00	30.82
40-E0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
20-40	00.00		00.00	00.0	00.00		00.00	00.00	00.00	0.00	0.00
05-06	00.00	00.00	00.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	0.00
20-90	00.00	00.00	00.00	00.0	00.00		0.00	0.00	00.00	00.00	0.00
80-20	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	
60 -80	00.00	00.00	0.00	00.0	00.00	00.00	0.00	00.00	00.00	00.00	0.00
01-60	00.00	00.00	00.00	00.00	0.00	00.00	0.00	0.00	00.00	00.00	0,00
TOTAL	65.67	23.83	5,97	4.48	00.00	00.00	00.00	00.00	0.00	0.00	



INDIANA DUNES FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAVE HEIGHT AND PERIOD MAVE DIRECTION = 300

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	6.04	0.05	0,06	00.00	00.00	00.00	0.00	0.00	00.00	00.00	6,15
01-02	7,95	94.0	0.15	00.0	00.00	00.00	00.00	00.00	00.00	0.00	8,56
02-03		18.1	0.53	00.00	00.00	00.00	00.00	00.00	00.00	00.00	9.4t
40-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00	
04-05	00.00	00.0	00.00	00.00	00.00	00.00	0.00		00.00		0.00
02-06	00.00	00.00	00.00	00.00	00.00	00.00	00.00		00.00	0.00	00.0
20-90	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0,00
07-08	00.00	00.00	00.00	0.00		00.00	00.00	0.00		00.00	
60-60	00.00	00.00	00.0	00.00		00.00	00.00	00.00	00.00	00.00	
01-60	00.00	0.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0,00
TOTAL	15.03	2.32	0.30	00.00	00.00	00.0	00.00	0.00	00.00	00.00	

INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 330

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20 20	20-22	>22	
00-01	6.04	0.17	00.00	0.12	00.00		00.00	00.00	00.00	0.00	6.33
01-02	7.40	0.86	0.36	90.0	0.01		00.00	00.00	00.00	0.00	8,69
02-03	1.59	3.71	0.89	0.71	0.26		0.00	0.09	00.00	00.00	7.34
40-E0	00.00	00.00	00.00	00.00	00.00		00.00	0.00	00.00	00.00	00.00
04-05	0.00	00.00	00.00	0.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00
02-06	00.00	0.00	00.00	00.00	00.0		00.00	00.0	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00
07-03	00.00	00.0	00.0	00.0	00.0		0.00	00.00	00.00	00.00	00.00
60-80	00.00	00.00	00.00	00.00	00.00		00.0	00.0	00.00	00.00	00.00
09-10	00.00	00.00	0.00	00.00	00.00		00.00	00.00	00.0	00.00	¿∪*0
1011	15.00	17. 7th		60.0			0.00	0.09	00.00	00.00	

INDIENG DUNES FILL SITE CUNULATIVE SER / SWELL FREQUENCIES OF WAVE HEICHT AND PERIOD WAVE DIRECTION = 6

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-E	& ⊗	61-8	10-12	12-14	14-18	16-18	18-20	20-22	>25	
10-00	9.38	0.53	0,45	00.00	00.00	00.0	00.0	00.00	00.00	00.0	10.36
91-02	7.54	2,11	1.01	0.30	0.05	00.00	0.00	00.00	0.00	00.0	11.01
02-03	±5.∶	9.80	2.74	1.67	0.13	0.27	0.18	0.00	00.00	00.00	10.02
93-04	00.00	00.0	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00
04-05		00.00	00.00	00.0	00.00	0.00	0,00	00.00	00.00	00.0	00.00
02-08		00,00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00
06-07		00.00	00.00	00.0	00.0	00.00	00.00	00.00	00.00	00.00	00.00
07-08	00.00	00.00	0.00	00.0	00.0	00.00	00.00	00.00	00.00	00.00	00.0
60-80	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	0,00	00.00
01-60	00.00	00.00	0.00	00.0	00.00	0,00	0,00	00.00	00.00	0, ω	0,00
TOTAL	18,15	6, 4rt	4,20	1,97	0.10	0.27	0,10	00.0	00.00	0.00	

INDIBNA DUNES FILL SITE

	E E E	JLAT I VE	SER /	SWELL F	REGUENC	IES OF	MAVE HE	IGHT AN	CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD	^	
				MAYE	MAVE DIRECTION =		90				
HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	17,59	1.79	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	19.39
01-02	7.52	0.27	00.00	00.00	00.0	00.00	00.00	00.00	0.00	00.00	7,78
02-03	56.0	00.00	00.00	00.00	00.00	0.00	00.0	00.00	0.00	0.00	0.92
40-E0	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0.00
04-05	00.0	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00
02-06	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00
20-90	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
07-03	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.0	00.00	00.00	00.0
60-80	00.00	00.00	00.0	00.00	00.00	00.00	00.0	00.00	00.00	0.00	0,00
00-10	00.00	00.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	0.00	υυ • ο
TOTAL	26,03	2,06	0.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	

INDIFINA DUNES FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 80

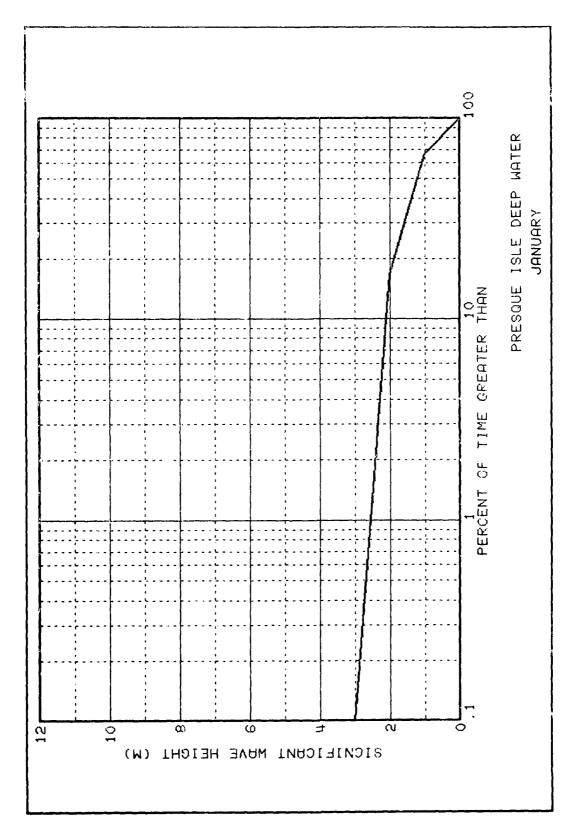
HEIGHT (M)				••	PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-1¢	14-16	16-18	18-20	20-22	>22	
10-00	00.0	00.00	00.0	00.00	00.0	00.00	00.€	0.00	00.00	00.00	00.0
50-10	00.00	00.00	0.00	00.00	00.00	0.00	00.00	0.00	00.0	00.00	00.00
02-03	00.00	00.0	00.0	00.00	00.00	00.00	00.00	0.00	0.00	00.00	0.00
40-60	00.00	00.00	0.00	00,00	0.00	00.00	00.00	00.00	00.00	00.00	00.0
04-05	0.00	00.00	00.0	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00
05-06	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
20-90	00.00	00.00	00.00	00.00	00.0	00.00	00.00	0.00	00.00	00.00	00.00
07-08	0.00	00.00	00.00	0.00	00.0	00.00	0.00	00.00	0.00	0.00	00.00
60-80	00.00	00.0	00.00	00.00	0.00	0.00	00.00	00.00	00.0	00.00	0.00
01-60	00.00	00.00	00.00	00.00	0.00	00.00	0.00	00.00	0,00	0.00	00.00
TOTAL	00.00	00.00	0,00	00.00	00.00	00.00	00.00	00.00	00.0	00.00	

APPENDIX K: AVERAGE WAVE CLIMATE AT PRESQUE ISLE, PA.

- 1. Appendix K contains two sets of the following information. One set is for the sand borrow area at Presque Isle, Pa., (deep water), and the other set is for the fill area:
 - a. Tabulations of monthly percent occurrence of wave-height/period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

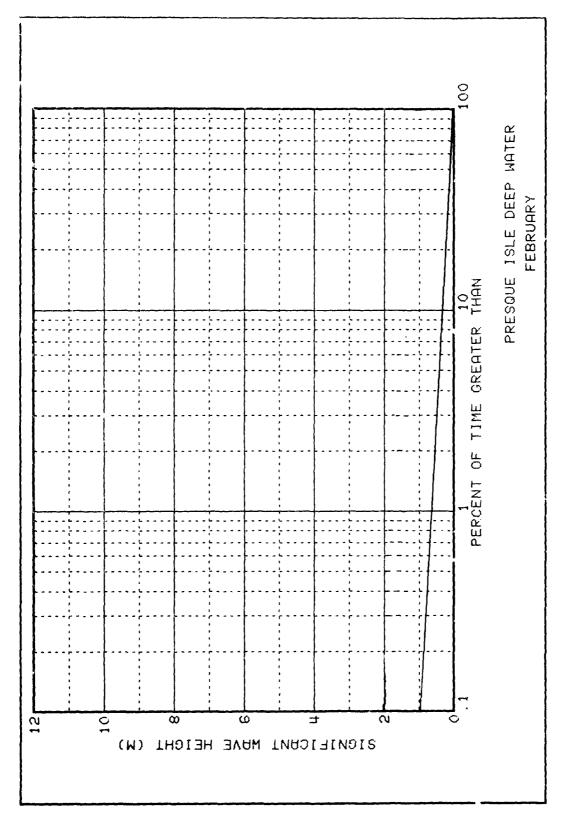
PRESQUE ISLE PEEP WATER CUMULATIVE SEG / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)					PERIOD	(SEC)					TOTPL
	<5-€	8-6	8-10	10-12	12-14	14-16	81-91	18-20	20-22	>22	
10-00	୫୧ ୧୯	00.00	00.00	00.0	00.0	00.0	0.00	00.00	00.00	00.00	38.୧୬
e5-10	50,00	00.0	00.00	00.0	00.00	00.0	00.00	0.00	00.00	0.00	50.00
02-03	00.0	18,67	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	16.67
#0-00	00.00	00.00		00.00	00.0		00.00	00.00	00.00	00.0	0,00
04-03	00.00	00.00		00.0	00.0			0.00	00.00	0.0	
02-08	00.00		00.00	00.0	00.00	00,0		0,00	00.00	0.00	
06-07	0.00		0.00	0.0	00.00	00.00	00.0	00.00	00.00	0010	30.0
07-03	00.00	00.00	0,00	00.0	00.0	00.0	00.0	00.0	00.00		ċ
60-80	0.00	00.00	00.00	90 * 0	00.00	00.0	00.00	00.00	00.00	0.00	ć*
03-10	00.00	00.0	00.00	00.0	00.0	0.00	၀ ့ ၀	00.00	0010	ઈ.ડ	
TOTAL	80,33	16.67	0,00	00.00	00.0	00.0	00.00	00.0	00.00	ः ०	



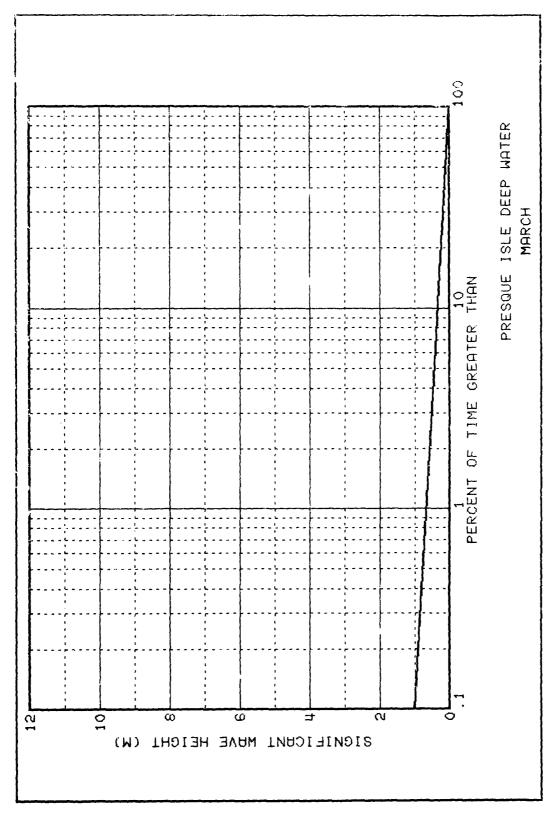
PRESQUE ISLE PERP MATES. CUMULATIVE SER / SUBLE FREQUENCIES OF MAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)					PERIOD	(3E0)					TOTAL
	3-S>	න ග	01-8	10-12	61-31	14-16	16-18	18-20	20-22	>22	
1000	00.00	00.0	00.0	00.0	0.00	0.00	00.0	00.00	00.00	0,00	0010
01-02	00.00	00.0	00.0	00.00	0.00	0.00	00.00	00.00	00.00	100.00	100.00
02-03	00.00	00.0	0,00	00.00	00.00	00.00	00.00	00.0	0.00	00.00	0010
40-60	00.0	00.0	0.00	00.0	00.00	00.00	0.00	00.00	00.00	30.0	00.0
5ú-ħ0	00.0	00.0	00.0	00.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00
05-05	00.00	00.0	0.00	00.00	00.00	00.0	00.00	00.00	υρ*υ	0.00	00°0
06-07	00.00	00.00	00.0	00.00	00.0	0.00	00.0	0.00	00.00	େ° ୍ 0	0013
97-08	00.00	0.00	o.0	00.00	0010	00.00	0.00	00.0	00'0	C)*9	, 1°0
08-03	00.00	00.00	00°0	00.00	00.0	0010	00.0	00.00	00*0	0310	(i) to
01-60	00.00	00.0	00.00	0.00	00,0	00,00	00.0	00.00	∂∂ *¢	000	
TOTAL	00.0	00.0	0.00	00.00	00.0	00.0	00.00	0010	00°C	00.001 00.0	



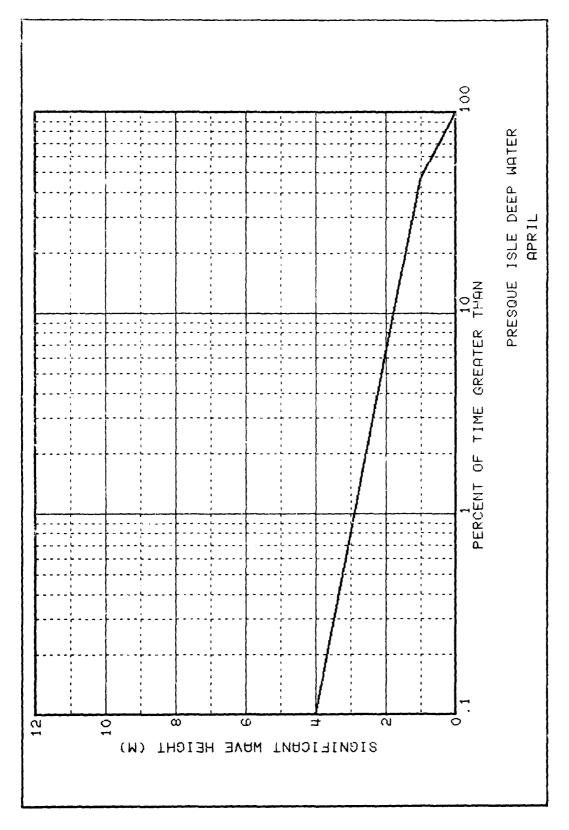
PRESQUE ISLE DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD (SEC)	(SEC)					rotal
	<5-6	8-8	8-10	21-01	12-14	14-16	14-16 16-18	18-20	20-22	>22	
00-01	100.00	0.00	00.0	00.00	00.00	00.00	00.0	00.00	0.00	00.00	100.00
01-02	00.00	00.00	00.00	00.00	0.00	00.0	00.00	00.00	00.00	0.00	0.00 C.09
02-03	00.0	00.00	00.00	00.0	00.0		00.0	00.0	00.00	00 ص	8
40-80	00.00	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	0.00
04-63	00.00	00.0	0.00	00.0	00.00		00.0	00.00	00.0	00.0	0.00
05-06	00.0	00.0	00.00	0.00	00.00		00.0	00.00	00.0	00.00	37.00 00.0
20-30	00.0	00.00	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.0	(a) (c)
07-08	00.0	00.0	00.00	00.00	00.0		00.0	00.0	00.0	9v*u	ं. डं
60-80	00.0	00.0	00.00	00.00	00.0		00.00	00.00	0,03	ψ. •	છ. ઉ
09-10	00.00	00.00	00.00	00.00	00.0	0.00	0.00	00.00	ψ , ς	00.00	, ::
TOTAL	100.00	00.0	00.00	00.00	00.00		0,00	00.00	0,00	0,00	



CUMULATIVE SER 2 TWALL OR WEINGES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					0019÷	(SEC)					TOTAL
	\$-€>	6: 1/	÷.	430. ;	a. 1−7.	हो-मा	16-18	18-20	20-22	>25	
10-00	52,38	€ 2 3	oo.	(1)	0.00	0.00	00.00	၁၀10	00.00	0.00	53,17
C1-02	39,68	0.79		ûg.	00.0	00.00	00.0	00.00	00.00	00.00	3 h .0µ
02-03	60.00	1.59	9. AQ	00.0	00.0	00.00	0.03	00.00	0.00	0.00	33 63
40-80	0,79	0.00	<u> ي</u> ن	60.00	0.00	00.0	00.00	0.00	00.00	00.0	6,78
04-05	00.00	00.0	00.0	00.0	0.00	00.00	0.00	00.00	00.00	00.0); C
05-06	00.0	00.00	00.0	00.0	00.00	00.00	0.00	00.00	00.00	0,00	00.00
06-07	00.0	00.00	00.00	0.00	00.0	00.0	00.0	00.00	00.0	(E) 5	3.6
07-08	00.0	00.0	00.00	0.00	00.0	00.00	0,00	00.00	00.0	Ų . ℃	0.00
60-80	00.00	00.00	00.00	00.00	00.0	00.0	00.0	00.00	00.00	<u>ှို့</u>	50,10
01-60	00.00	00.00	00.00	00.00	00.00	0.00	0,00	00.00	0) to	ું. ડ	50.0
TOTAL	96.82	86,5	00.00	0.79	00.0	00.0	00.0	00.0	00.00	0,00	

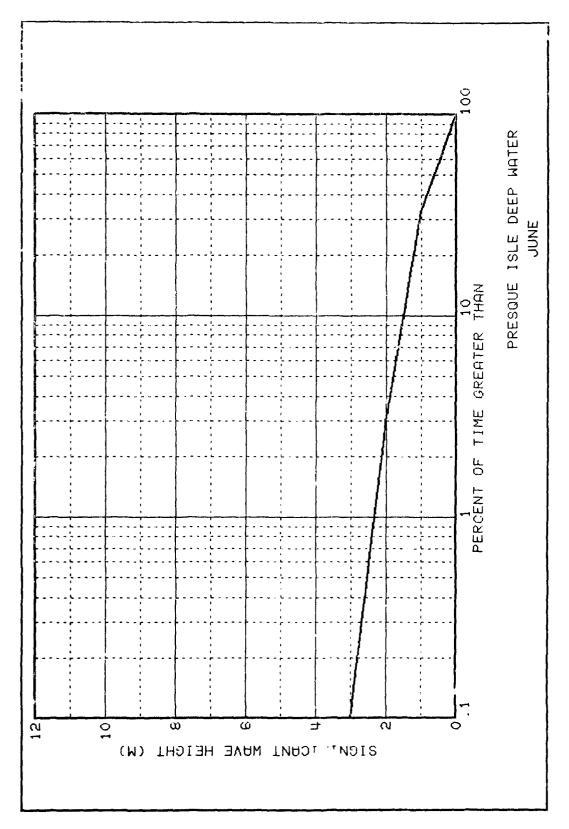


PPESGUE ISLE LEEP HATEN OUNULATIVE SER / SMELL FREQUENCIES OF WAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD (SEC)	(SEC)					OTAL
	9- 3 >	တ ယ	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	55,57	60	0.00	00.0	00.00	00.0	0.00	0.00	00.00	00.0	£1,45
01-02	27,36	9. 89.	00.00	0,47	0.47	00.0	00.0	00.00	00.0	00.0	31.13
0S-03	H6.0	0.47	00 0	00.0	00.0	00.0	0.00	00.00	00.00	0.00	=
40-E0	00.00	00.0	0.00	00.0	00.00		00.00	00.00	00.00	0.00	00.0
04-05	00.00	00.00	00.00	0.00	00:00	00.0	00.0	00.0	00.00	0.00	0.00
05-06	00.00	00.0	00.00	0,0	00.0	0.00	00.0	00.0	00.00	00.00	0.00
05-07	00.00	00.0	00.0	0.00	00.0	0.00	00.00	0.00	0.00	00.00	W.0
30-70	00.00	00.00	00.00	0,00	00.0	00.0	00.0	0.00	00.00	0.0	
60-80	00.00	0.00	00.00	00,00	00.00	0.00	00.00	0.00	0.00	ن ن ن ن ن	ن• (د.
01-60	0.00	0.00	00.00	00.00	00.00	00.0	00.00	00.00	0.00	0°00	90°C
TOTAL	93.37	5,19	00.00	0.47	0.47	00.00	00.0	0.00	00.0	2,00	

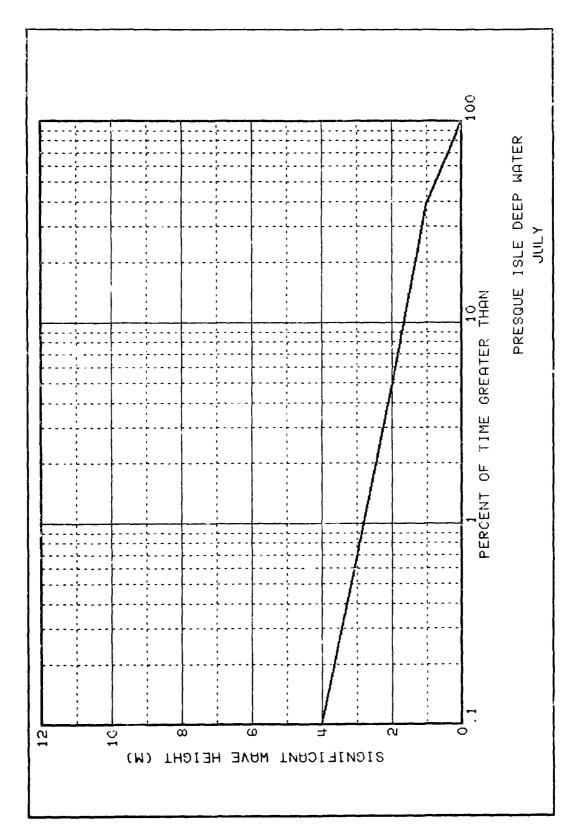
PRESCUP TOLE FER LATER SET A SMELL FEEDUNGLES OF WAXE HEIGHT AND PERIOD FOR JONE

HEIGHT (M)					PERIOD	<0583					TOTAL
	\$ -8.	& -&);-a	21-01	12-14	91-10	81-91	18-20	20-22	722	
το-ου	63,43	1,87	δ. Τ.	0.37	0.00	00.0	0.00	00.0	0.75	0.37	67,15
01-05	28,12	19.5	1,17	00.0	0.00	00.00	00.0	0010	00,00	0,0	93156 6
G2-63	1,12	SC 10	0.75	0.37	0.00	00.00	00.0	0.00	00.0	00.00	el el
40-E0	00.00	0.00	0.00	00.00	00.00	00.0	(S. Q.)	0.00	00.0	0,00	00.0
20-40	00.00	00.0	0.00	0010		00.0		00.00	00.00	0,00	0010
ରେ-ଏର	00.00	00.00	0.00	0.00		00.00		0.00	00.00	0,00	6.9
20-30	00.0	00.0	00.0	المهري	00.0	00.0	00,0	00.0	00,0	90. 0	ي. ن
90-00	00.00	00.00	0,00	0,00	00.00	00.00	0.00	00.00	00.00	ं	() ()
60-80	00.00	00.00	00.0	0,00	00.00	00.0	00.0	00.0	00.0	0010	500
09-10	00.0	00.0	0.00	00.00	0.00	00.00	00,0	00.0	00.00	63.0	00°0
TOTAL	90,67	က် လ	ફુંડ	0.75	0.00	00.0	0,00	00.00	0.75	0.87	



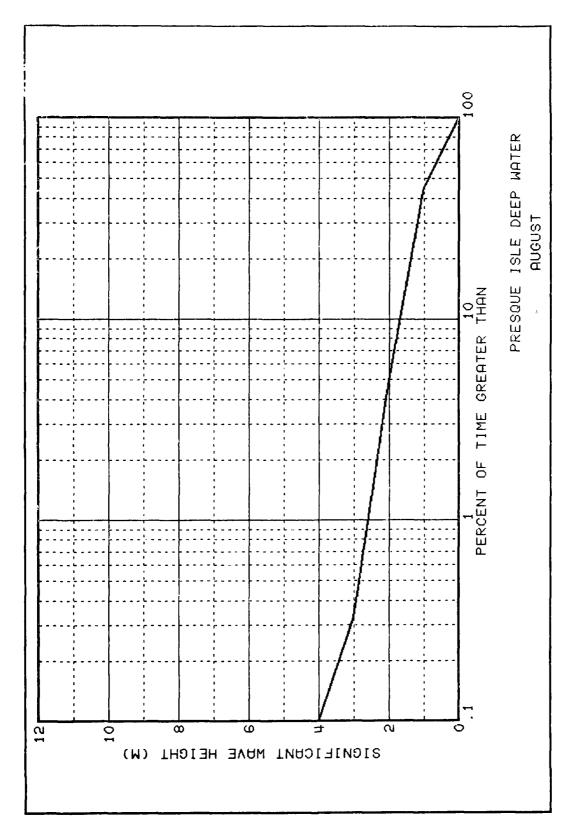
PRESQUE ISLE DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)					PER10D	(SEC)					TOTAL
	⟨2-€⟩	8-8	01-8	10-12	12-14	1+-16	16-18	18-20	20-22	>22	
10-00	58,98	2,03	0.00	00.00	00.00	00.0	00.0	00.00	00.00	0.34	61.35
01-05	30.17	8.05	±6.€	0.34	00.00	00.00	00.00	00.00	0.00	0,00	33.50
02-03	2,71	1.35	00.0	00.0	00.0	00.00	0,00	00.00	00.0	00.00	20°π
h0-80	0.68	00.00	00.0	00.0	00.0	00.00	00.00	00.00	00.00	00.0	ଞ୍ଚ ଦ
0.4-05	00.00	0.00	00.00	00.00	00,00	00.00	00.0	00.00	00.0	0,00	ij, ΛΩ
0£-08	0.00	0,00	00.00	00.00	00.00	00.0	00.0	00.00	00.00	0,00	00.0
06-07	00.0	00.00	00.00	00.0	00.0	00.00	00.0	00.00	00.0	3.0	ं
80-40	00.00	00.0	00.0	00.00	00'0	00.0	00.00	00.00	υυ * υ	လ် ပ ိ	2.5
S0-80	00.00	00.0	0.00	00.00	00.00	00.0	0,00	00.00	0.00	(i) (i)	8
09-10	00.00	00.00	0,00	00.00	00.0	00.0	00.0	00.0	0.00	U)*9	ó
TOTAL	92,54	9, 4th	0.34	16°0	00.0			0,03	00.0	表:0	



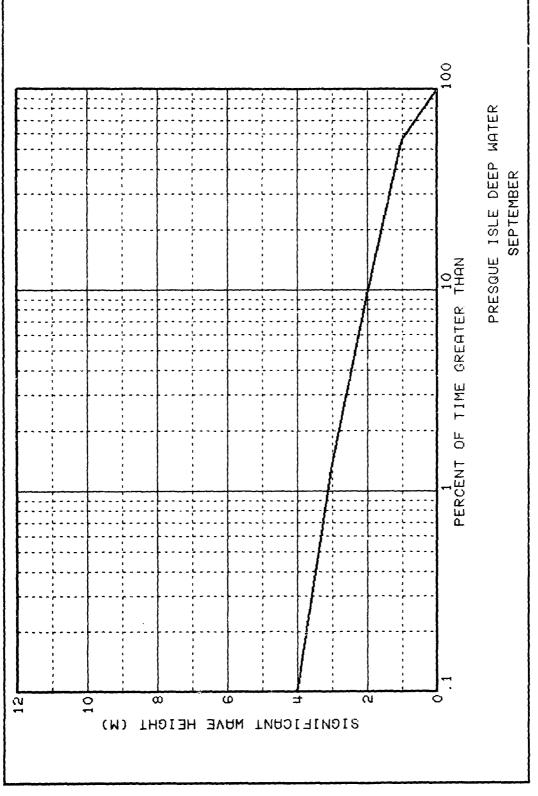
PRESQUE ISLE DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-8 √5-8	8-8	8-10	10-12	15-1H	14-16	16-18	18-20	20-22	>25	
10-00	52,15	0.99	0.33	0.00	0.00	00.0	00.00	0.00	1.32	0.00	5H, 79
50-10	93.99	4.95	1.32	00.00	00.00	00.0	0,00	0.00	00.00	00:0	40.25
02-03	3.63	00.0	0.33	0.66	0.00	00.00	00.0	00.00	00.00	0.00	4,62
40-E0	00.00	00.0	0.33	00.00	00.0	00.00	00.0	00.00	00.00	0.00	0.33
50-40	00.00	00.00	00.00	0,00	00.00	00.0	00.0	00.00	0.00	0.30	00 0
05-05	00.00	00.0	00.00	00°°	00.0	0010	00,00	0.00	00.00	0,00	\cap \cap \cap \cap \cap \cap \cap \cap
25-07	00.00	00.00	00.00	00.00	00.0	00.0			00.0	05.0	ري د د
80-20	0.00	0.00	00.0	0.00	00.0	0,00	00.00	0010	00.00	ψη• 0	
60 -8 0	0.00	00.00	00.00	00.00	00.00	00.0	0.00	00.00	0.00	ن' زير	0.01
03-:0	00.0	0010	00.0	03.0	0,00	00.00	0.00	00.0	00.0	ં. ં	Ĉ.
TOTAL	89.77	5,94	2,31	39.0	00.0	0.00	00.0	00,0	83	0°0	



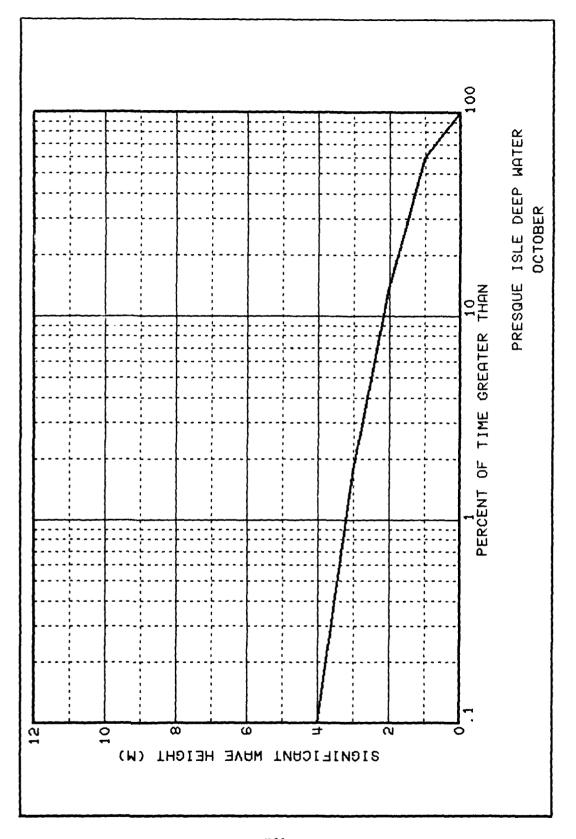
PRESGUE ISLE DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)				_	PERIOD	(SEC)					TOTAL
	<5-8	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-32	>22	
16-00	41,64	1.37	1.02	0.00	00.00	00.00	00.0	0.00	00.00	00.00	60. PH
01-02	39,93	4.78	1,36	9.34	0,00	00.00	00.00	00.00	00.00	00.0	2h*9n
02-03	8,80	2,05	00.00	0.34	00.00	00.00	00.00	00.00	00.00	00.00	67 67 8
±0~€0	00.00	1.37	00.00	00.0		00.00	0.00	00.00	00.00	00.0	00
20-40	00.0	00.0	00.00	0.00	00.00	00.0	00.00		00.0	00.00	0310
05~06	0.00	00.0	00.00	00.00	0.00	00.0	0.00	0,00	00.00	0.00	00.00
26-36	00°	00.0	0.00	00.00	00.0	00.0	0.00	00 J	00 0	00.00	2010
07~08	0,00	00.0	ું. ઉ		0.00			υς 1 0	0010	ुर	نان
60-80	00.00	00.00	30.0	0,00	00.0	00.0		00.00	00.0	5.	1000
09-10	0.00	00.0	00.0	800	00.00	ಂ.೦		00.00	() ()	00.0	2
TOTAL	87,37	9,55	60.5	ે. છેલ		00.00	00.00	00.00	00.0	0,00	



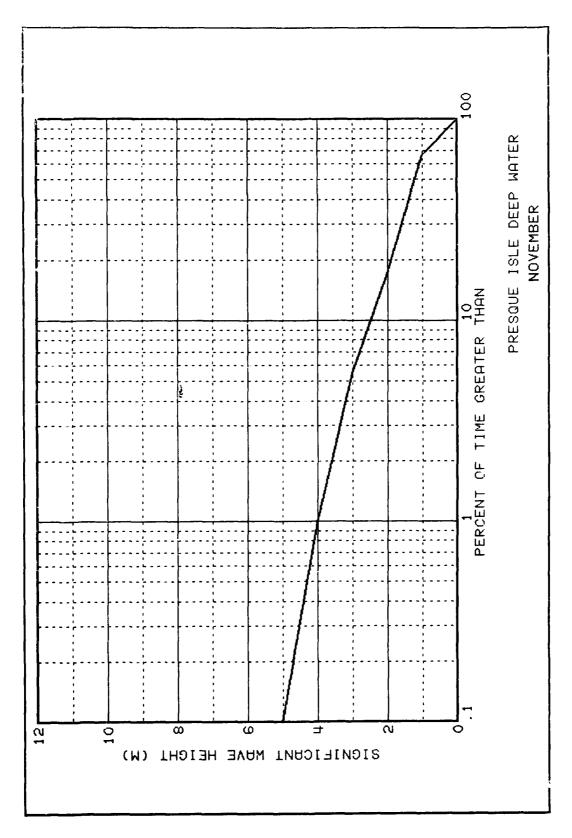
PRESQUE ISLE DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)				_	PER I OD	(SEC)					TOTAL
	8-8	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	99,44	00.00	0.00	00.00	0,35	00.00	00.00	00.0	00.00	0,35	40.14
01-02	38,38	4.2a	2,46	1.06	00.00	00.00	00.00	0,00	0.00	00.00	61.8P
02-03	69.8	2.46	1.76	1.06	00.00	00.00	00.00	0.00	00.00	0.00	11,97
40-60	14.1	0,35	00.00	00.00	0.00	٥٠٠٥		00.00	00.00	0.00	1.78
04-05	00.00	00.00	00.00	00.0	00.00	0.00	00.00	00.00		0,00	0.00
05-08	00.00		00.0	00.00		00.0		00.00	00.00	ე∂ , ე	0°,00
20-90	00.00	00.0	00.00	00.0	00.00	00.00	0.00	00.0	0.00		
07-08	00.00	00.00	00.00	00.00	00.00	00.0	00.0	0.00	0000	8010	
60-80	00.00	00.00	00.0	00.0	00.0	00.0	00.00	0°.00	0° 60	0,00	000
01-60	00.00	00.0	00.00	00.00	00.00	0.00	0.00	00.00	00°0		
TOTAL	85.92	7.04	ф. 23	2,11	0,35	00.00	0.00	0.00	0,0	0,35	



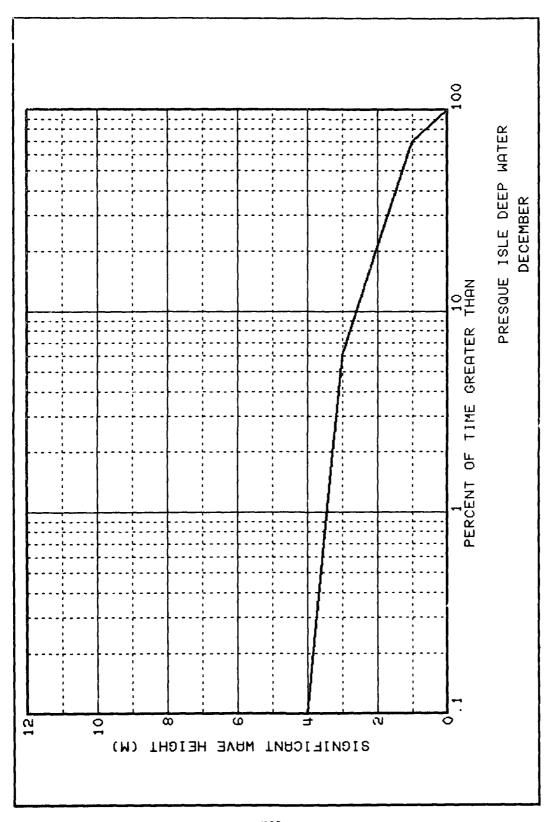
PRESQUE ISLE DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	32.84	0.75	00.0	0.00	00.00	0.00	00.0	0.00	00.00	00.00	33.58
91-05	42,54	4.97	0.75	0.75	0.00	00.00	0.00	0.00	00.00	0,25	मु ७. टेड
02- 03	5,72	3,38	1.74	00.00	0.25	00.00	00.00	0.00	0.00	0.00	11.69
93-04	0.50	2,74	0.39				00.00	0.00	00.00	00.00	34.4
04-05	0.00	0.25	0.25		0.25	0.25		00.00	0.00	00.0	0.95
05-06	00.00	00.00	00.0	00.00	00.00		00.00	00.0	0.00	00.0	00.00
06-07	00.00				00.00		00.0	00.00	00.00	00.0	U. Ju
07-08	00.0	00.0		0.00			0.00		00.00	0.00	ري کي
6v-30	00.0	00.00	00.0	00.00	0.00		00.00	00.0	00.00	00.00	0°0
01-60	00.0	00.0	00.00	0.00	0,00	0,00	00.00	00.00	٥٠ ٥٠	90.0	0.00
TOTAL	81,59	12,68	3,73	C.93	0.50	0.25	00.00	00.00	ڻ. ن	0,05	



PRESQUE ISLE DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	30.40	00.00	00.0	00.00	0.00	00.00	00.00	00.00	0.00	00.00	90,40
20-10	42.57	4.73	0,67	00.00	0,68	00.00	00.00	00.00	00.00	00.00	48.65
02-03	7,43	5.41	1.35	0,68	00.0	00.00	0.00	00.00	00.00	00.00	14,87
hu-60	4,05	2.03	00.00	00.00	00.00	00.0	00.00	0,00	00.00	00.00	80.0
04-02	00.00	00.00	00.00	0.00	0.00	00.00	00.0	0.00	0.00	00.00	00.0
05-05	00.00	00.00	0,00	00.0	00.0	00.00	00.00	0,00	00.0	00,00	€0°0
2ú-90	00.0	00.00	00.0	00.00	00.00	00.0	00.00	00.00	0.00	0000	00.0
07-08	00.0	00.00	0.00	00.00	0.00	0,00	0,30	0,00	00.0	UD TO	ė
60-80	00.00	0.00	00,00	٥٠,00	00.0	00.00	00.00	00.0	00.00	00.0	č Z
01-60	00.00	00.0	00.0	0010	00.00	0,00	0.00	0,00	00.00	ر د نې	(a)
TOTAL	34,48	12,17	୫,03	0,68	0.68	00.0	00°0	00.00	00.00	0,0	



PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 270

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	11.13	0.09	0.0	0.00	0.04	00.00	00.00	0.00	0.21	0.00	11.51
50-10	0.38	0.98	0.30	0.17	0.04	00.00	00.00	00.00	00.00	0.00	10.87
02-03	1.75	0.77	0.26	0.08	0.04	00.00	00.00	00.00	00.00	0.00	8.30
40-E3		0.47		0.04	00.00	00.0		0.00	0.00	0,00	0.94
04-02		0.04	00.0	0.00	0.04	0.04	00.00	00.00	00.00	0.00	0.13
05-0E		0.00	0.00	0.00	00.00	00.00		00.00	0.00	0.00	00.0
06-07	00.0	00.00	ύō*0	00.0	00.00	00,0	00.00	00.00	00.00		ن ن (د
8ú-40	00.0	00.0	00.0		00,0		0,00	00.00	00.0	ئ. 10	
60-80	00.00	00.0	00.00	0.00	00.0	00.0	00.00		00.00	00.0	12 13 13
09-10	\$0°5	0.00	0,00	00.00	00.00	00.00	0.0			30 .0	
TOTRL	22.54	رن د د د	0.54	0.30	0,17	0.04	00.0	00.0		ः •	

PRESQUE ISLE DEEP WATER
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 300

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	7.08	0.13	0.00	00.00	00.00	00.00	00.00	0.00	00.00	0.04	7.25
2 0-10	6.82	0.98	D.34	0.04	0.04	00.00	00.00	0.00	00.00	0.00	8,23
02-03	0.98	0.68	0.17	0.04	00.00	00.00	00.0	00.00	00.00	00.00	1.88
93-04	0.13	0.09	0.13	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0.34
04-05	0,00	00.00	00.00	00.00	0.00	00.0	00.00	00.00	0.00	0.00	00.00
02-06	00.00	0.00	0,00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
06-37	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	00.0	00.00
80-60	0,00		00.00	_	00.00	00.00	00.00	00.00	00.0	00.00	0.00
€0-30	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00	0.00	00.00	00.0
09-10	00.00	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	00.0	00.00
TOTAL	15,00	1.88	0.54	0.09	0.04	00.00	00.00	0.00	00.0	0.04	

PRESQUE ISLE DEEP WATER CUMULATIVE SER / SWELL FREQUENCIES OF WAYE HEIGHT AND PERIOD WAYE DIRECTION = 330

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	6.44	0.21	0.09	00.00	00.00	00.00	0.00	00.00	0.00	0.00	6,74
01-05	5.67	0.47	10°C	0.09	00.00	00.00	0.00	00.00	00.00	0.03	6,35
02-03	0.26	0.09	0.13	0.09	00.00	00.00	0.00	00.00	00.00	00.00	0.55
60-ec	0.04	60.0	0.00	00.00			0.00	00.00	00.00	00.00	0.13
04-05	00.0		00.00	00.00		00.00	00.00	0.00	0.00	00.00	00.00
90-50	00.00		0.00	00.0			00.00	0.00	00.0		00.00
<u>0</u> 6~07	00.0		0.00	0.00	00.00	့ လ	0.00	00.0	00.00		.510
07-08		0.00		00.00	00.00	00.00	00.00	00.00	0010		ر د د
60-80		0.00	0.00	00.0	00.00	00.00	00.0	00.00	00.00	00.0	10°0
09-10	00.00	0.00	0.00	00.0	00.00	00.00	00.00	00.00	0.01	υρ.•υ	ڻ' ڊ <i>ٽ</i>
TOTPL	12.40	0,85	0.25	0,17	00.00	00.0	00.00	0.00	0.00	SQ 10	

PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 0

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	5.75	0.26	00.0	0.04	00.00	00.00	0.00	00.00	00.00	00.00	6.05
50-10	3.20	0.34	0.04		00.00		00.00	00.00	00.00	0.00	3.58
02-03	0.21	0.04	00.00		0,00		00.00	00.00	0,00	0.00	0.30
40-E0	0.00	0.09	00.00	00.00	0,00	00.00	00.00	00.00	00.00	0.00	0.09
04-02	00.00	00.00	00.00	00.00	0,00	00.00	00.00	00.00	00.00	00.00	0°0°
05-05	00.00	0.00	0.00	00.00	00.0	00.0	00.00	00.00	00.00	00.00	0,00
06-07	0.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00	0.00
07-08	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0,00
60-£J	00.0	00.00	00.0	00.00	00.00	00.00	00.00		00.00	0.00	0,00
09-10	0.00	0.00	0.00	0.00	00.00	00.00	00.0	00.00	00.00	0.00	8
TOTPL	9.16	0.73	9,04	0.09	0.00	00.0	00.00	0.00	00.0	00.00	

PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 30

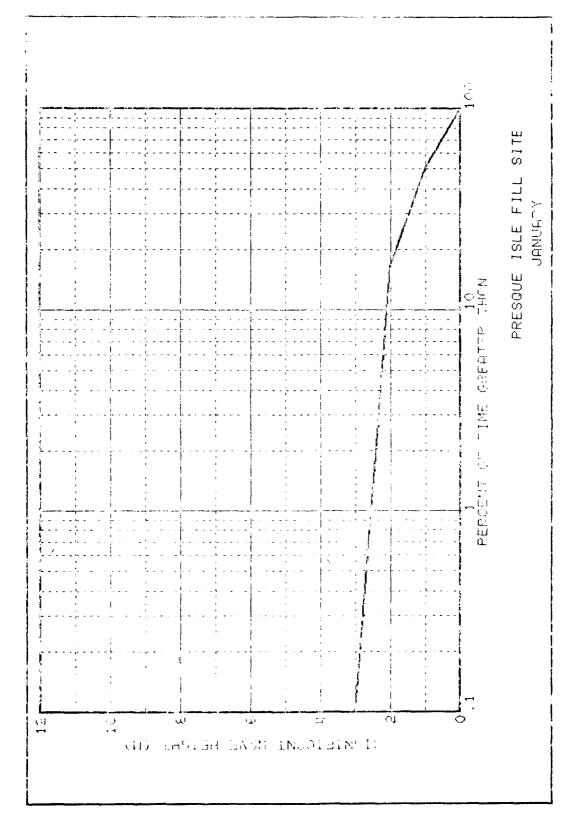
HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	7,84	0.17	0.04	0,04	00.0	00.00	00.00	00.00	0.04	0.04	8.18
50-10	4,35	0.51	00.00	10°0	00.0	00.00	00.00	0.00	00.00	00.00	C3.4
02-03	0.26	0.13	0.09	00.00	00.00	00.00		0,00	00.00	00.00	0,47
40-E0	00.00	00.00	00.0	00.00	00.00	0.00	00,00	0.00	00.00	00.00	00.0
04-05	00.00	00.0	00.00	00.00	00.00	00.00	0,00	0,00	00.00	0.00	ુ ડ
05-06	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0,00	00.00	نځين	ري. ن
£0-90		00.00		00.00	00.00	00.00	0.00	00.00	0.00	00.0	0.00
60-70	00.0	00.00	00.00	00.00	00.00	00.00	00.0	0.0	0010	00.00	<u>د</u> ن
08-03	00.0	00.00	00.00	0,00	00.00	00.0	00.00	00,40	00.0	00.00	់
01 - 6Û	00.00	00.0	00.00	00.00	00.00	0.00	00.0	0,00	00.00	0010	Si
TOTAL	12,45	0,0	0,13	0,03	00.0			0.00	10°0	0,04	

PRESQUE ISLE DEEP WATER CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD MAYE DIRECTION = 60

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>25	
10-00	9.68	0.21	0.0	0.00	0.00	00.00	0.00	00.00	0.00	90.0	9.97
50-10	6.22	05.0	0.26	0.04	00.0	00.00	00.00	00.00	0.00	00.00	7,12
02-03	0.77	0.34	0.09	0.09	00.00	00.00	00.00	00.0	00.0	00.00	1.23
40-E0	0.09	0.03	0.04	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0.21
50-40	0.00	00.0	0.04	00.00	00.0	00.00	00.00	00.00	00.00	00.00	0.04
30-50	00.00	00.00	00.00	00.00		00.00	00.00	00.00	00.00	00.00	0.00
05-07	00.00	0.00	00.00	0.00	00.00	00.00	00.00	0.00	00.00	٥٠٠٥	00.0
07-79	00.00	00.00	0.00	00.00		00.00	00.00	00.00	00.0	00.00 0	60.0
60-80	00.0	0.00	00.00	00.00	0,00	00.0	0.00	00.00		<u>्र</u> 0 ° 0	
03-10	00.00	00.00	00.0	00.0	00.0	00.00	0.00	0.00		00.00	
10191	16.75	1.24	្ដែ	0.10	0.00	00.0	00.00	00.0	00.0	ψ. O	

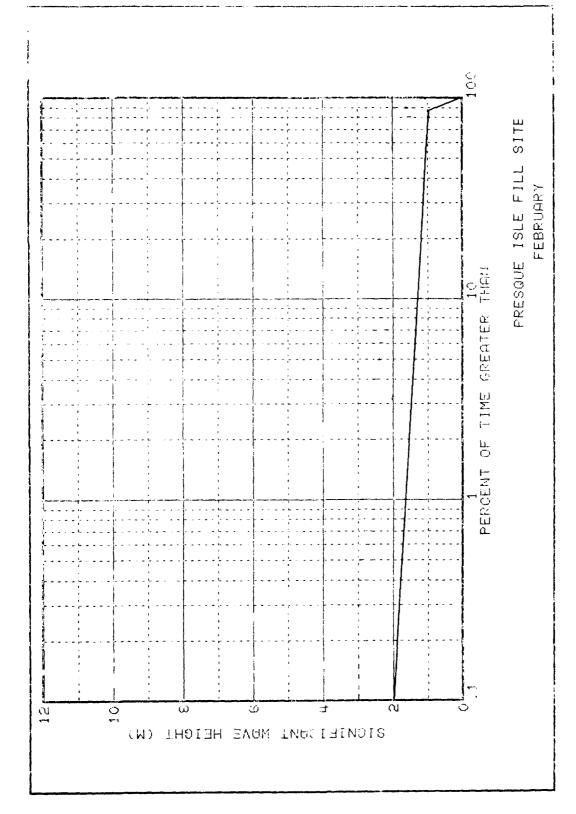
PRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE MEIGHT AND PERIOD FOR JANUARY

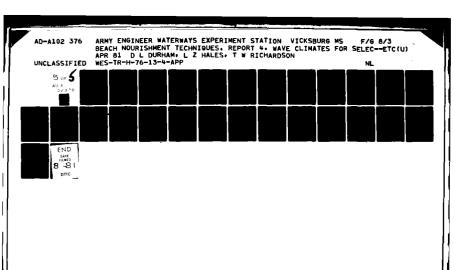
HEIGHT (M)					PERIOD	(358)					70791
	<5∽€	8-3	8-10	21-01	12-14	14-16	87-37	18-20	20-52	282	
10-00	98.8p	00.0	00.0	00.0	00.0	00.0	0.00	00.00	00.00	0,00	38.6H
01-02	33.97	00.00	00.0	00.0	00.0	00.0	00.0	00.00	00.0	∂u*u	33,37
69-69	00.00	16.67	00.00	00.00	0.00	00.00	00.0	00.00	00.00	6.00	(a)
ha-ea	00.0	0.00	0.00	00.0	00.0	00.0	00.00	0.00	00.0	0.00	€0°5
20-40	0.00	00.00	0.00	0.00	00.0	00'0	0.00	00'0	00.0	30.5	300
£1-20	0.00	o, 3	0.00	0010	00.0		્ટ •		00.0	<i>€</i> ₹	00°V
29-31	00.0	00.0		ن ، بان	0:0	300	(J.)		رن د		
30-30	(C) (C)	0.00		, J			÷	800			
60-80	0010	် ဂ	0000) · .	ć.	· ·	٠ ٠, د	() () ()	ć	\$ 2	
J7-00	0,10	0.00	0.00	٠.	e C	ς ζ.	Colon Colon Colon Colon Colon	ر د			
16161	G (60	00.0 000 000 000 000 000 000 000 000 00				•		€÷	(,)		



PRESQUE ISLE FILL SITE CUMULATIVE SEH / SWELL FREGUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

											1
HETGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	13-14	14-16	16-18	18-20	20-22	>22	
00-01	00.00	00.0	00.0	00.00	00.0	00.0	0.00	00.0	0.00	0.00	0,00
91-05	00.0	00.00	0.00	00.0	00.00	0.00	00.0	00.00	00.0	12.36	6 6 6 7
05-03	00.0	00.0	00'0	00.00	00.0	00.00	00.0	00.0	ن. د. 00	87.04	E7.13
33-37	00.00	00.0	00.00	00.0	00.0	00.0	00.0	0.00	00,00		0.00 00.0
04-05	00.00	0.00	00.00	00.00	00.0	00.00	0010	00.0	0°0	00.0	ာ (၁) (၁)
00-00	0.00	0.00	0.00	00.00	0°°0	0.00	90°0	00.00	0070	00°0 00°0	, PA
26-30	00.0	0.00	0,00	0.00			\$3°5	9010		0.00 0.00 00.00	() ()
67-60	φ 0 *δ	(9.3	\$.00		į.	5010	C.J	્ટ ે 'ડ	-	 (
C>-85	00.0	00.0	\$ 0 3 0	99*0	800		(O)	ر ن ن	ن زر	ن در را	٠
01-00	0,0	0.00	\$0.00 10.00	ن د دو	04°0	0000	0.0	00.0	Ç		*
10101	00.00	ΰυ' Đ	ربي رم	÷ψ*ψ			0.0	00.0	C 11-101 0010 0010	0	



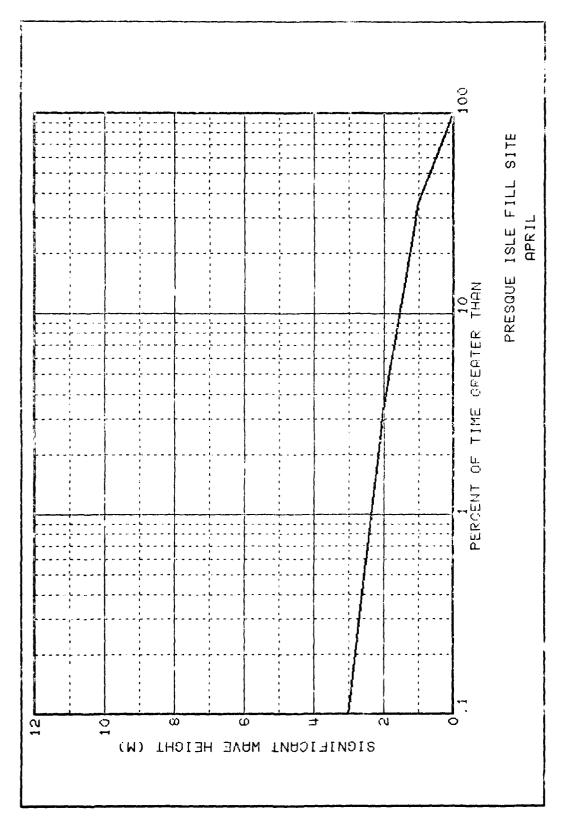


PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	3 -10	10-12	12-14	14-16	16-13	18-20	20-22	>25	
10-00	100,00	00.00	0,00	00.0	00.0	00.00	٥٥,0	0.00	00.00	0.00	100.00
01-02	0.00	00.00	00.00	00.0	00.0	00.00	0.00	00.00	0.00	00.0	00.0
02-03	00.00	00.00	0.00	00.0	00.00	00.0	00.0	0,00	00.0	0,00	υ. Ο
h0-60	00,00	00.00	00.00	9,00	00.0	00.00	00.0	0.00	00.0	0,0	\$0°0
04-05	00.00	0,00	00.00	00.0	0.00	00.0	0,0	00.00	00.00	0,00	
05±08	0,00	00.00	0.00	0,0	00.00	نې د.	00.0	00.00	0.00	٠ چ	3
08-07	0,00	00.00	00.0	0, 0	00.00	0010	000	ر د د	نۍ رڼ	ر • ډر	:
02-08	00.0	6.3	ે ં	ن د د	<u> </u>	95°C	() ()	Ċ	2310	; ;	•
ep-20	00.00	0010	00°6	्ठ ° ठ	00.0	00°0	\$ \$ \$	نائن	9.00	*	
01-60	000	65.0	ij0°ψ	ंं	00.0	30.0		€0 * €	50°E		
TOTOL	100,00	00.0	0.73	6, 6	φφ	0,00	2	() ()		: :	

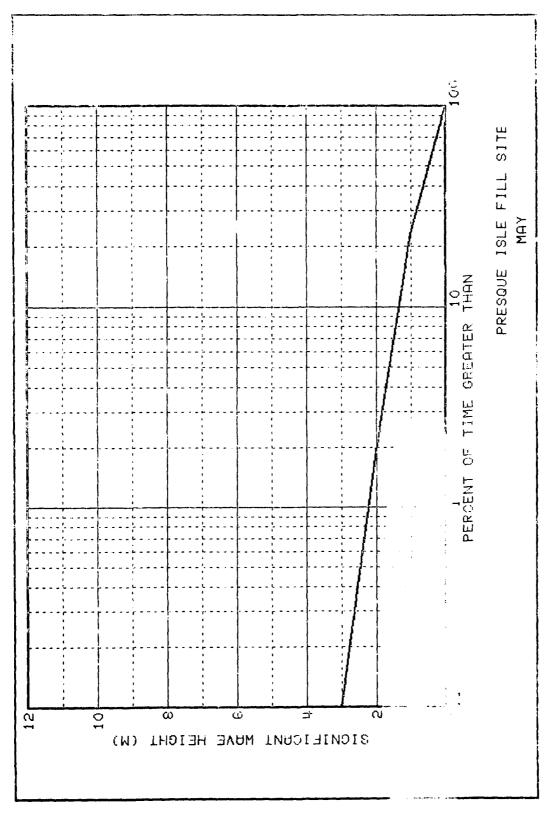
PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)					PERION	(SEC)					TOTAL
	45-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	\22 \22 \25	
00-01	63,46	00.00	00.00	0.74	00.00	00.00	0.00	0.00	0.00	0,0	64.20
01-05	30.04	2.34	0,00	90.0	00.00	00.0	0.00	00.00	00.00	0.00	35.44
02-03	3,32	0.05	00.0	00.0	00.00	00.0	00.00	0.00	0.00	6.00	3.35
h0-60	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.0	00.00	0.60	0,0
04-02	00.00	0.00	00.0	00.0	00.00	00.00	0.00	0.00	00.00	00.0	0°°0
65-06	00.00	00.00	ാ .ഭ	00.00	00.0		00.00	0.00	00.00	0.00	,_ c
20-00	00.00	00.0	00.0	00.0	0,00		00.0	00,0	0.00	0.0	1
30-40	00.00	00.00	65.50	9010	0.00	ن د رن	(j)	0310	0.00	(). ()	
60-80	00.0	00.00	00.7	00.0	00.0	0.00	ÇÜ, ÇÜ	ن• ن	ου 1 υ	 	.:
03-10	0.00	8.0	00.00	32.40	() 'C	00.00	00.00	⊕. •			
TOTAL	60°000	32.0 00.0 Se.8 58.88	00.00	€ 35°		0.00	0010	00.0		ation (1.7)	



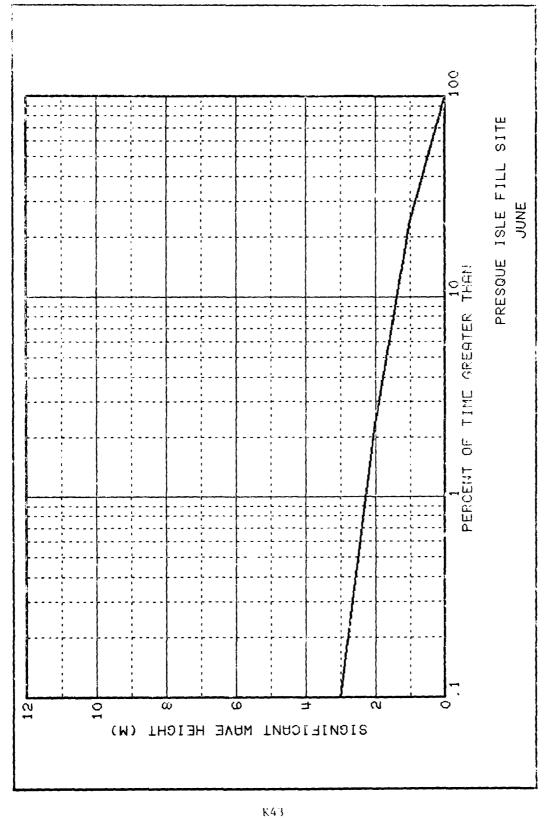
PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	74.13	2,59	00.00	00.0	00.00	00.00	00.0	00.00	0.00	0.0	76.72
01-02	19.27	1.66	0.00	0.33	0.10	00.00	00.00	00.0	0.00	00.0	21,35
02-03	0.47	46.0	00.0	0.14	0.37	00.0	00.00	0.00	00.0	0.00	1.92
93-04	00.00	00.00	0.00	00.00	00.00	00.00	00.0	00.00	00.00	00.00	0010
90~60	00.00	00.00	00.00	00.00	00.0		00.00	00.00	00.00	00.0	υν°ο
05-05	00.00	00.00	00.00	00.00	00.00		00.0	00.00	00.0	00.0	() 15 5
20-90	00.00	0.00	00.00		0,00		00.0	0010	0000	ن. د	c' c'
97-00	00.0	00.0	3,00	00.0	∂010	3	<u> </u>	0010	61.0		· .
60-80	00.0	00.00	୍ଦ୍ର	స్త్రీ క	50°0	000	6010	Ç. O	ن ئ	ڊ رڻ	
(3-1)	00.00	0,00	0010	00.0	ು.೧	3.0	0,00	ंं र		: :	
TOTAL	90,87	5,13	00,00	0.47	0.11	0000	800	0.00	والمراور		



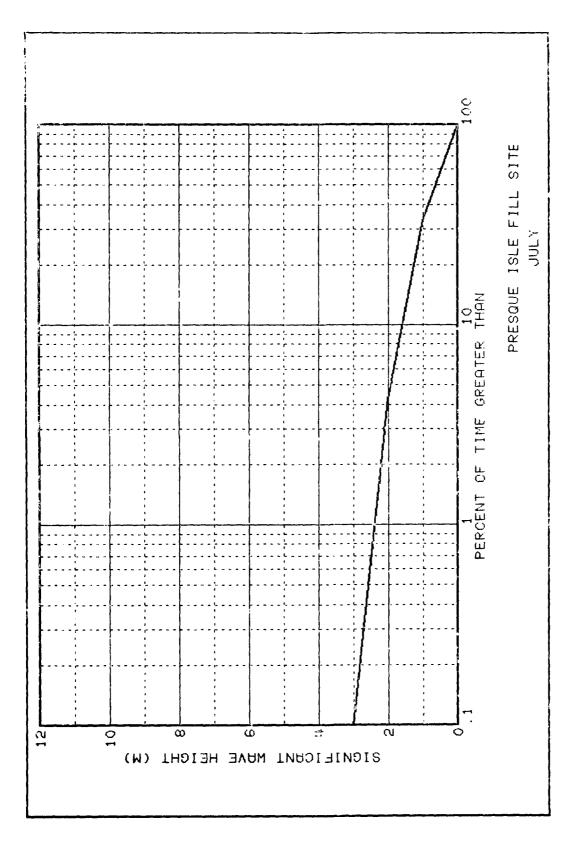
PRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-€	8-9	01-8	10-12	1.2-14	14-16	16-18	18-20	20-22	>25	
10-00	72.13	2.73	0.26	0.32	00.00	00.0	00.00	00.0	0.49	0.26	76.17
01-05	17.88	1,76	1.16	0.38	00.00		0.00	0,00	0.26	0.12	21.43
02-03	0.57	0.74	0.82		00.0	0.00		00.00	0.00	00.0	5 .34
40~E0	00.00	00.00	00.00	0.00	00.0	00.0		00.00	0.00	00.00	
04-05	00.00	0.00	00.00		00.00	00.00	00.00	00.00	00.00	00.00	0010
95-03	00.00	00.00	00.0	_	00.0	0.00		00.0	0.00	00.00	
06-07	00.00	00.0	00.0	00.00	00.00	0,00	0,00	0,00	0010	υ, Ω	
07-08	00.00	00.00	00.0		00.00	0.00		00.00	\$ 0	00°40	
08-09	00.00	00.00	00.0		ು.೧	00.0	6,00	0.03	0)*c	5 °	<u>ت</u> د د
01-60	00.00	00.0	0°0	00.0	00.00	00.00	6)*3	0.00 0.00	60°0	0010	
TOTAL	90.67	5,22	રી હો	0.75	0.00	0.00	00.0	00.00	0.75	E010	



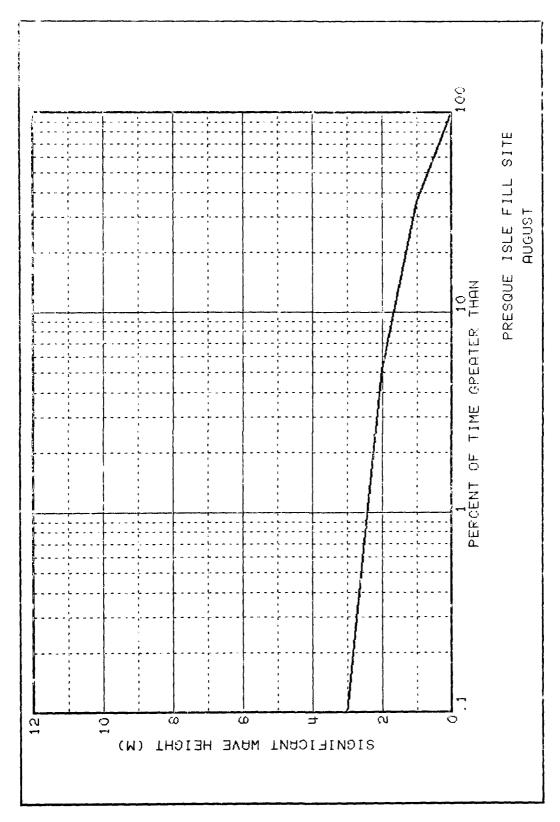
PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)					PERIOD	(SEC)					TOTPL
	42-6	8-0	8-10	10-12	12-14	14-16	16-13	18-20	20-22	>22	
10-00	64,15	2.31	0.00	00.00	00.00	00.00	00.0	00.00	0.00	pe.0	08.39
20-10	25,99	2.62	0,13	0.20	00.00	00.00	00.00	00.00	00.00	00.00	P2, 94
60-50	2.40	1.51	0,21	0.14	00.00	00.00	00.00	00.00	00.00	0.00	ा (प्र
40-60	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00
30-h0	0.00	00.00	0,00	00.00	00.00	00,00	00.00	00.00	0,00	00.0	0.00
05-08	00.00	00.0	0,00	00.00	00.0	0.00	00.0	00.0	0,00	€.°	00.0
0E-07	00.00	00.00	0.0	00.00	00.0	0.00	00.00	00°0	00.00	00,00	UE*U
07-09	00.00	60.0	0,00		00.0		00.0	00.00	60.0	ن	<u>ک</u> خ
03-09	00.00	00.0	00.0	00.00	00.00		ζ <u>ο</u> το	0010	90°0	00.0	
01-60	00.00	00.00	0,0	00.0	0,00	00°0	00.0	÷5.40	0210		e de la composition della comp
ToTal	10 60 60	5, 4.3	0,84	ac o		0.00 0.00	0,0	0.00	00.0	:	



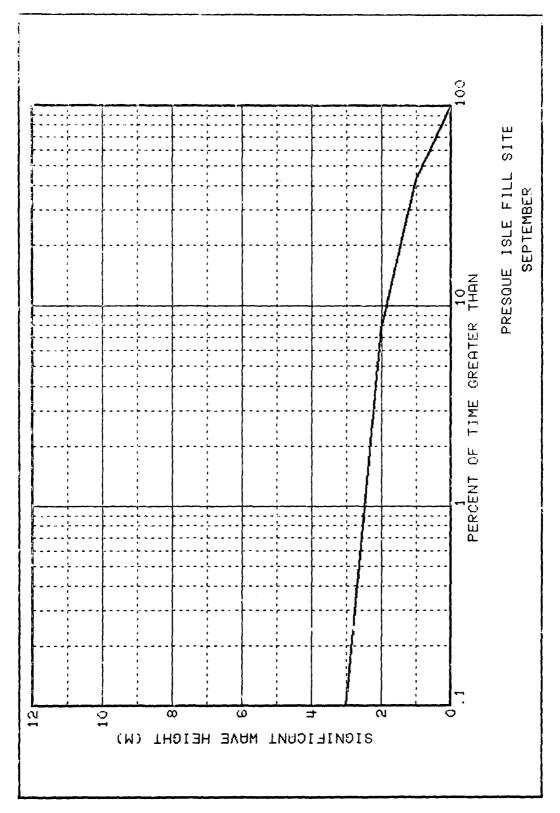
PRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	61.56	1.73	0.33	00.0	0.00	00.0	0.00	00.00	0.78	00.00	64.40
01-02	25,55	3,77	09.0	00.00	0,00	00.0	0.00	00.00	0.54	0.00	30.46
60-50	2.56	0.44	1.38	ે. કં ક	0,00	00.0	00.00	00.00	0.00	00.0	31.50
to-60	00.0	00.00	00.00	00.00	00.00	00.00	0.00	00.00	00.0	0,00	ر ٠ ٥ز
04-02	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.0		00.0	0.00
05-05	00.00	00.00	00.0	00.00	00.00	0.00	00.00	0,00	00.00	00.0	0.00
26-07	00.00	00.00	00.00	00.0	0.00	00.00		00.00		0)*0	
07-08	00.00	00.00	00.0	00.00	o.0	ن دن		0.00		0.00	***
60-80	00.00	00.00	00.0	00.0	00.00	00.7	ω , ο	3.0		JU 10	.)*.
03-10	00.00	00.00	00.00	0.00	00.0	0,00	00.00	(a) * 0	60°6	c, d	
T0TRL	89,77	5,94	(d)	0,66	00.0	0.00		00.00	60	(J. 0	



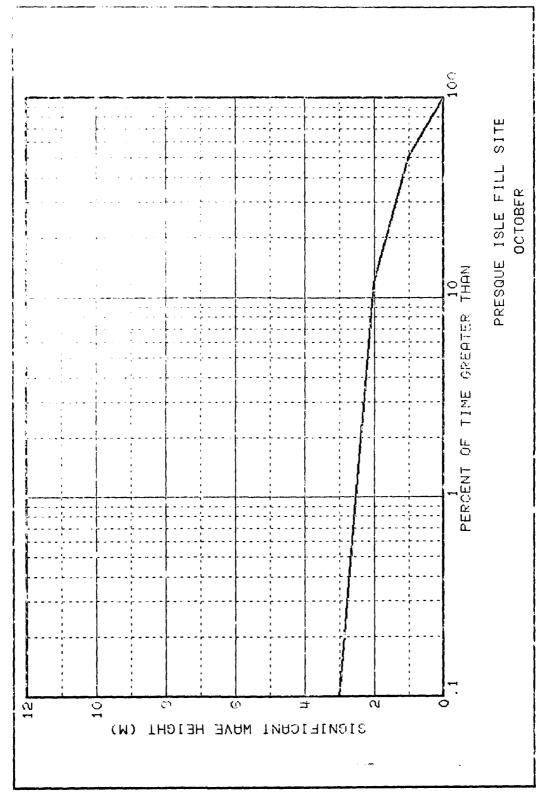
PRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	45-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	54,12	8.00	1.14	00.00	00.0	00.00	0.00	0.00	0.00	0.00	57.26
01-05	39°48	4.50	0,31	0.20	00.00	00.00	00.0	00.00	0.00	00.0	35.00
02-03	3.77	30.6	0.43	0.49	00.00	00.00	0.00	00.00	0.00	0.00	7.74
40-E0	00.0	00.00	00.00	00.00	00.00	00.00	00.0	00.0	0.00	00.0	00.0
04-05	00.00	00.00	0.00	0.00	00.00		00.0	00.00	00.00	0,00	00.0
02-06		00.00		00.00	00.0	00.00	00.0		0,00		ن٠ز
20-90		00.0	υύ * 0	00.00	00.00		0.00		0,00		ري• ا
07-08		00.00		S.0	00.00		0010	0°°3	υ, υ,	65.0	
60-80	0.00	0,00	0,00	0.00		00.0	00.0		00,00		ř ď
03-10	0.00		00.0	0.00	0,00		0.00	0.00	00.0	ن در	
TOTAL	87.37	୫୦° ଚ	ର ଧ	99.0 0	0,00		0.0		G, G	ر . بار ر • بار	



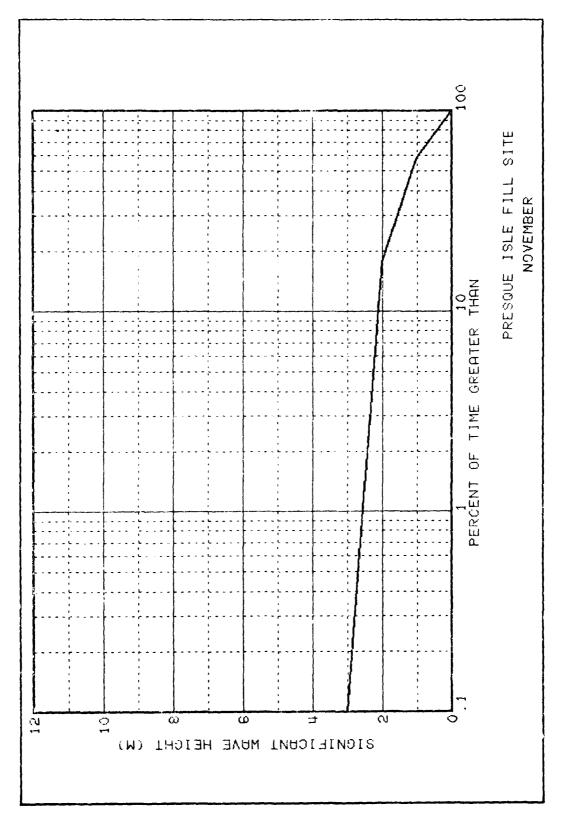
PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF MAYE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	47.30	0.58	0.47	0.12	0,21	0.00	00.0	0.00	00.00	0.20	40.40
20-10	32,19	3,60	2.00	0.50	0.14	00.0	0.0	00.00	0.00	0.10	(i)
02-03	5.82	2,85	1.75	1.49	00.00	00.0	0.00	00.00	00.00	©0 1 0	11.83
03-04	00.00	00.00	00.00	0.00	00.00	00.00	00.00	00.00	0.00	0.00	50.5
S0-40	00.00	0.00	00.00	0.00	00.00	0.00	00.0	0.00	0000	00.0	00.0
05-06	00.00	0.00	00.0	00.00	00.0	0.00	00.0	00.0	00.00	Ç.	5:5
05-07	00.0	00.0	00.00	00.00	0.00	00.00	00.0	00.0	υο τ ο	ć.	
07-08	00.0	0.00	9.30	ξ. ε	00.0	00.0	୧୪ ଚ	0.7	¥0.	, ò	
€v-80	00.0	0.00	00.0	00.0	00.0	00.0	0.00	0.00	ું ડુ	ř.	
09-10	0,00	00.0	00.0	0.00	00.0	€0. *€	03.0	0.03	C.	· .	
TOTAL	63, 63	85,92 7,04		ر د د		0.53 0.09		() ()	ç	•	



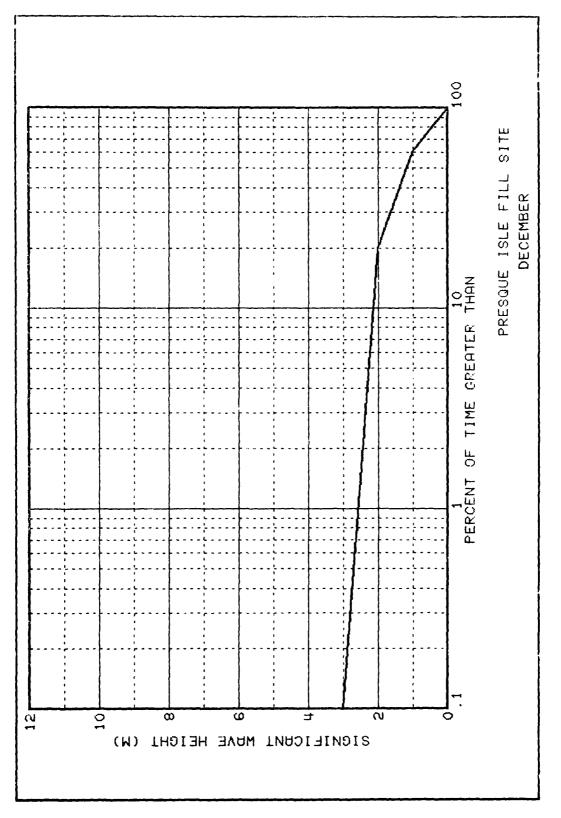
PRESCUE ISLE FILL SITE CUMULATIVE SEA / SMELL FREQUENCIES OF WAYE MEIGHT AND PERIOD FOR WOVEMBER

HEIGHT (M)					PERIOD	(3EC)					TOTPL
	<5-E	6-3	8-10	10-12	12-14	14-16	31-91	18-20	20-22	₩	
10-00	40,45	0.98	00.0	00.0	00.0	0,00	0,00	00.00	00.00	်	ti. 43
50-10	#1.6 1	60.4	0,53	0.14	00.0	00.0	00.00	00.0	00.0	6.05	18.04
05-03	8.00	7.61	3,20	ି ଓଡ	0,50	0,25	0.00	0.03	00.00	9.28 82.0	(i) (i) Eve
03-0H	00.0	00.0	00.0	00.0	00.0	00.0	00.00	0,00	00.0	00.0	00°0
20-60	0.00	0.00	00.00	00.0	00.00	90°Q	00.00	0,00	00.00	0.00	30.0
05-05	0.00	00.00	0.00	00.0	0.00		00.0	0,00	00.00	ुः	
20-50	00.00	00.0	0,00	00 0	00.0	©°√	0.00	00.0	00.0	00.0	č. Ç
07-08	00°0	00.0	8,0	0,00	00.0	00°C	0.00	00.0	66.5	 	
08-09	0,00	00.00	0,0	0,0	00.0	0,00 0,00	0.00	0010	\$0 * 0	<i>C</i>	
09~10	00.00	00.00	လု ံ	00.0	000	9.00 0.00	5.30	0,00		·	rş.
TOTA'.	81,59	12,68	6,73	03.6	្ត	5 0	00.0	ତି ଓ	90°6	t.	



CUMULATIVE SER / SMELL FREQUENCIES OF MAVE HEIGHT PND PERIOD FOR DECEMBER

HEIGHT (M)					PERIOD (SEC)	(333)					TOTAL
	×8-₽	80 60	8-10	10-10	12-14	31-01	खा- <u>७</u> १	18-20	20 28	V V	
00-01	Se. 35	1.02	00.0	0010	03.0	00.0	0.00	00.0	00.0	0.00	ର େ.୭ ୫
20-10	99,09	3:38	0.25	0.47	6) ⊙	00.0	00.0	00'0	00.00	00.0	40.71
02-03	5,78	7.30	57:	0710	େ: ଓଡ	00.0	0.00	00.0	00.0	00.00	19.91
#0-60	00.00	00.00	200	00.0	00.00	00,0	00.00	00.0	0.00	0010	00.00
20-10	00.00	00,00	00.0	0.00	00.00	00.0	00.00	0,00	0.00	00.00	00.00
05-06	00.00	00,0	00.0	00.0	00.0	00.0	0.00	00.0	0.0	0,0	္ဂ (၁.၅
20-90	00.0	0.00	00.0	50.0	0.00	0.00	ů) tů	0,00	00.0	0.0	05.30
07-08	00.0	0.00	00.00	00.0	00.0	00.00	00.0	00.0	00.0	5. 5. 4.	ď Č
60-80	00.0	00.0	00.00	0.00	0,00	0.00	0.00	0.00	0°00	0.0	٠ ن
01-60	00.0	00.0	00.00	60.0	00.0	00°0	00.00	00.00	3010	ୈଠ	· .
TOTO	अत. यह	80.4 77.17 2.08	60.4	0.8 0.8 0.8 0.8	0.88		0.00	0.00	0.00 0.00	O. C	



PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 270

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	45-6	æ-6	8-10	10-12	12-14	14-16	16-18	18-20	20-22	528	
10-00	11.13	0.07	0.03	00.00	00.0	00.0	00.00	00.00	0.00	00,0	11.22
20-1 0	9.38	0.58	0.12	00.0	0.00	00.00	00.00	0.0	00.00	0.00	80 .0 1
62-03	2,13	1.69	64.0	00.00	00.0	00.00	0.00	00.0	00,00	0.00	, a
40-00	00.00	00.00	00.0	00.00	00.0	00.0	00.00	00.0	0.00	00.00	0.00
04-05	00.00	00.0	00.00	00.0	00.00	00.00	00.00	00.00	00.00	00.00	0.00
02-06	00.0	0.00	0.00	00.0	0.00				00.00	6.00	600
08-07	0.00	00.0	0,00	00.0	00.0	0.00	00.0	00.00	00.0	0),00	ည် ်
90-70	00.00	00.00	00.0	00.00	00.00		00.0	0.00	0,00	0,00	
୧୦-୫୦	00.00	00.00	0.00	0.00	0,00		0.00	0,00	00.0	ن• رن	្
01-60	0,00	00.00	00.00	00.00	0.00	00.0	0,00	00.00	00,00	00.0	ζ, ζ.
TOTAL	22,64	ક. ક	0.34	00.00	00.0	00.0	00.0	00.00	00.00	0.40	

PRESQUE ISLE FILL SITE

CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 300

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	42-6	8-9	8-10	10-12	12-14	14-16	16-13	18-20	20-25	>22	
00-00	7,44	0.12	00.0	00.00	0.03	00.0	0.00	00.00	0.12	0.02	7.73
01-02	6.56	98.0	0,24	90.0	0.05	0.00	00.0	00.00	0.09	0.02	7.88
6050	1.00	0.90	0,40	0.32	0.14	0.04	0.00	00.00	0.00	0,00	2.80
40-E0	00.0	00.00	00.0	00.00	00.0	0.00	00.0	00.00	0.00	00.00	00.00
04-03	00.0	00.00	0.00		0.00	00.0	00.0		00.0	00.00	00.00
05-05	00.0		00.0	0,00	00.00	00.00	00.00		0.00	00.00	00.00
06-07	00.0	00.00	0,03	0.00	00.0	0° 50	00.0	00.00	00.00	0°°0	00.0
0.5~0.0	00.0	0.00	00,00	00.00	0.00	jo10	0,00	00.0	0.00	ن• ز _ن	φο.σ
03-00	0.00	00.0	00.00	00.00	0.00	ijυ ' Φ	0.00	00.00	00.0	0.00	Ė
01-60	0,00	0.00	00.00	00.0	00.00	0.00	0.00	0010	00.00	00.00	0
ומינוד	15.00	60	0.8 0.8	0.00	0,38 0,21	to o	0,00	0.00	ر ان ان	ن. ن	

PPESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 830

HEIGHT (M)					PERIOD	(SEC)					TOTAL
	<5-6	ص ص	8-10	10-12	12-14	14-18	16-18	18-20	20-22	>22	
10-00	5,74	0.21	3.07	.04	0.00	00.0	00.0	00.00	00.00	00.0	2,05
01-02	5,40	0.45	€0 1 0	0,05	00.00	00.0	0.00	00.00	00.00	10.0	S
02-03	0.27	0.20	9,14	0.16	0010	0,00	00.0	00.00	0.00	0.07	မှု တ
03-04	00.00	00.0	00.0	00.0	00.00	00.00	00.00	0.00	00.00	00.0	00.00
04-02	0.00	00.00	00.0	00.0	00.00	00.00	0.00	00.00	0.00	00.00	9010
05-05	00.00	00.0	00.00	00.0	0.00	00.0	00.00	0.00	00.00	00.0	00.0
20-50	00.0	00.0	00.0	0.00	0.00	00.0	00.0	00.0	00.00	97.70	6.07
67-08	0.00	0.00	00.00	ू े े	0.00	0.00	00.0	0,00	Q5.10	22.0	ڻ 0, 0
08-09	00*0	00.0	0,03	00.00	00.0	00.00	00,0	00.0	0,03	00.00	6.0°C
01-60	00.0	00.0	00.00	00,00	0.00	00.00	0915	0.00	00.0	S	G. 5
TOTAL	12.40	0,85	0.30	୦,୧୬	0.03	00.00	00.00	00.00	00,0	30°0	

PPRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 0

HEIGHT (M)					PER: 00	(SEC)					TOTAL
	<5-6	8-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
10-00	16.12	0.58	10.0	0,04	0.00	00.00	0.00	00.0	0.03	0.03	18.31
01-02	5,33	0.78	00.0	0,04	00.0	00.00	0.00	00.00	0.01	0.01	6.:7
05-03	0.16	0.20	0,09	0.01	00.00	0.00	00.0	00.00	00.00	00.00	9h.0
40-60	00.0	00.00	00.0	0.00	00.0	00.0	0.00	00.00	00.00	00.0	00.0
34-05	00.00	00.00	00.00	00.00	00.00	00.0	00.00	0.00	00.00	00.00	00.0
05-06	00.0	00.00		00.0	00.0	00.0		00.0	00.00	0.00	0010
08-07	00.00	0.00		00.00		0.00		00.0	00.0		0.00
07-38	00.00	00.00	00.00		0.0		00.0	0.00	0.00	30.0	98.5
60-80	00.00	00.00	00.00		00.00		00.0	0.00	00.0	00.00	
00-10	00.00	00.0	00.0	0.00	0.00	00.0	00.00	00.0	00.0	00.0	C
TOTP!	21.81	1.54	0.13	80.0	00.0	00.0	00.0	00.00	0°0	0.0 0.0	

PRESQUE ISLE FILL SITE CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION ≈ 30

					6	í					, ,
					PLK100	SECT					.! 5
	<5-6	8-8	8-10	10-12	12-14	91-41	16-18	18-20	20-22	>55	
10-00	15.19	0.66	0.13	0.01	00.0	00.00	00.00	00.00	00.00	ઈ:ડ	15.04
50-10	1.54	0.53	0.23	0,09	00.00	00.00	0.0	00.0	00.00	00,0	2,30
02-03	0,02	0.04	0.11	€010	00.00	00.00	00.0	00.00	00.00	00.00	C. P.
93-04	00.00	0.00	00.00	00.0	0.00	00.00	00.0	00.00	00.00	0.00	00.0
30-60	0,00	00.00	00.00	00,00	00.00	00.00	00.00	00.00	0,00	00.00	02.0
05-06	00.0	00.00	00.0	0.00	0.00		00.00	00.00	00.00	00.0	00°0
05-07	0.00	00.00	0.00		0,00	00.00	00.00	0.00	0,60	ن ⁺ ن	; ;
65-63	00.00	00.00	00,0	00.00	00.00		0,00	0,00	0010	ବ୍ୟ'କ	
CO-80	00.00	0.00	0.00	00.0	0.00	0010	00.0	00.00	0,00	90.0	0.4 ty
01-60	00.00	00.0	00.0	0,00	0,00	00.00	00.00	00.0	00.0	ଓ : ଓ	
TOTAL	16,75	1,2	0,47	0.13	0,00	00.0	00.00	0,00	υ ο τ ο	10°0	

PRESQUE ISLE FILL SITE CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD WAVE DIRECTION = 50

HEIGHT (M)					PERIOD (SEC)	(SEC)					TOTAL
	42-6	8-8	8-10	10-12	12-14	91-h1	16-18	18-20	20-22	>22	
10-00	00.00	00.00	00.00	0.00	0.00	00.00	00.00	00.00	00.00	0.00	00.00
20-10	00.00	00.0	00.00	00.00	00.0	00.00	00.00	00.00	00.0	00.00	0.00
02-03	00.00	00.00	00.0	00.00	0.00	00.00	00.0	00.0	00.00	0.00	0010
40-60	00.00	00.0	00.00	0.00	00.0	00.00	00.0	0.00	00.00	0.00	0010
04-05	00.00	00.00	00.00	0.00	0.00	00.0	00.00	00.00	0.00	00.00	0.00
05-06	00.0	00.00	00.0	00.0	00.00	00.0	00.00	0.00	00.00	0.00) ()
06-07	00.0	00.0	00.00	00.00	00.00	0.00	0.00	00.00	0.00	00.00	()·O
00-60	00.00	00.00	00.0	ن • ون	00.0	0010	00.0	00.00	00.0	10.0	
03-03	0.00	0.00	0.00	00.00	೦.0	0.00	00.00	00.0	00.0	0.00	
03-10	00.0	00.0	00.0	0.00	00,0	0.00	0,00	00.00	0.00	00.0	С)
TOTAL	00.00	00.00	0.00	00.00	00.00	0,00	0,00	0.00	00.00	0°00	

In accordance with letter from DALN-RDC, LAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced

Durham, Donald L.

Beach nourishment techniques : Report 4 : Wave climates for selected U.S. Offshore Beach Nourishment Projects : Appendixes A-K / by Donald L. Durham, Lyndell Z. Hales, Thomas W. Richardson (Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station.) -- Vicksburg, Miss.: The Station, 1981.

407 p. in various pagings : ill. ; 27 cm. -- (Technical report / U.S. Army Engineer Waterways Experiment Station; H-76-13, Report 4, App. A-K.) Cover title. "April 1971."

"Prepared for Office, Chief of Engineers, U.S. Army."

1. Beach erosion. 2. Dredging. 3. Water waves. I. Hales, Lyndell S. II. Richardson, Thomas W. III. United States. Army. Corps of Engineers. Office of the Chief of Engineers. IV. United States. Army

Durham, Donald L. Beach nourishment techniques : Report 4: App. A-K : ... 1981. (Card 2)

Engineer Waterways Experiment Station. Hydraulics Laboratory. V. Title VI. Series: Technical report (United States. Army Engineer Waterways Experiment Station); H-76-13, Report 4, App. A-K. TA7.W34 no.H-76-13 Report 4 App. A-K

